TermiNet® Products

INSTRUCTION MANUAL
FOR THE GENERAL ELECTRIC
STANDARD (GESTD)
TermiNet EDIT BUFFER ACCESSORY
GEK-49369B

MP MASTER
MA32666

GENERAL ELECTRIC

The information contained herein does not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to General Electric Company, USA.

TermiNet DATA COMMUNICATION PRODUCTS

INSTRUCTION MANUAL
FOR THE GENERAL ELECTRIC STANDARD (GESTD)
TermiNet EDIT BUFFER ACCESSORY

GEK-49369B

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SECTION1
INTRODUCTION

This publication describes the installation, operation, and service of the TermiNet Edit Buffer Accessory (EBA) and optional Battery Backup (BBU), when supplied. The EBA is available for use with TermiNet 200 and 1232 Printers. Additionally, the optional Battery Backup is available for TermiNet 200 Printers.

The edit buffer accessory provides an all electronic, on-line/local, data storage and retrieval system for a standard KSR printer. Full editing capability of the stored data is available to the operator from the printer keyboard.

The edit buffer accessory consists of a circuit board, a set of controlling program integrated circuit chips, and an interface cable. The edit buffer accessory will accommodate an optional battery backup circuit board and a different interface cable. This option preserves stored data for up to 3 hours during a printer off condition.

The edit buffer accessory provides a KSR printer with a versatility similar to that provided by magnetic tape or paper tape equipment without the mechanical and physical actions required by these devices. All required operator functions are performed by typing information on the printer keyboard. No additional controls are required.

The battery backup option for TermiNet 200 Printers provides standby power for the edit buffer accessory. This option consists of a circuit board (SBAT) and a special connection cable. Fully charged, the battery pack on the SBAT board will supply backup power to the EBA for periods of time based on the amount of memory used on the EBA. These time periods are approximately 3, 2, 1½ and 1 hours for memory storage of 4K (standard), 16K, 32K, and 48K respectively.

SECTION 2
INSTALLATION

Installation of the edit buffer accessory in a KSR printer consists of inserting the SEBF circuit board into the proper printer Mother board slot, routing the interface cable, and connecting the cable connector to the SEBF board and to the printer Mother board "tape" connector. If Battery Backup is also being installed on a TermiNet 200 Printer, a special connection cable is used containing a branch that connects to the BP1 connector or the SBAT circuit board. The SBAT board is inserted into the STO slot in the printer. Two installation kits are available (see "Part Numbers" in Section 4, Maintenance).

TermiNet 200 PRINTERS

Refer to the printer service manual (GEK-49330, Service Manual for the TermiNet 200 Printer) as required, and install the option per the following information.

1. Turn off the printer AC power switch.
2. Open the printer cover and remove the auxiliary control panel cover.

3. If the printer is an A model, remove the right capacitor cover.

4. Configure the SEBF and SBAT boards per Tables 4-1 and 4-1A.

5. Install the SEBF in the front board slot of the printer electronics package as shown in Figure 2-1.

CAUTION

Exercise care when connecting the SEBF board to the printer Mother board to prevent bending the connector pins.

NOTE

If the battery backup option (SBAT board) is included with the edit buffer accessory, plug that circuit board into the STO slot. If an STO board is present in the printer, move it to the SPARE slot (see Figure 2-1). Make sure component side is facing rear of printer.

6. Connect the interface cable to the P1 connector on the SEBF board, and seat the board in the Mother board connector. Refer to Table 2-1 for parts compatibility.

NOTE

Interface cables designed for use with the battery backup option contain two branches. One branch is connected to P1 of the SEBF circuit board while the other branch (BP1) is connected to the battery backup (SBAT) circuit board. See Table 2-1.

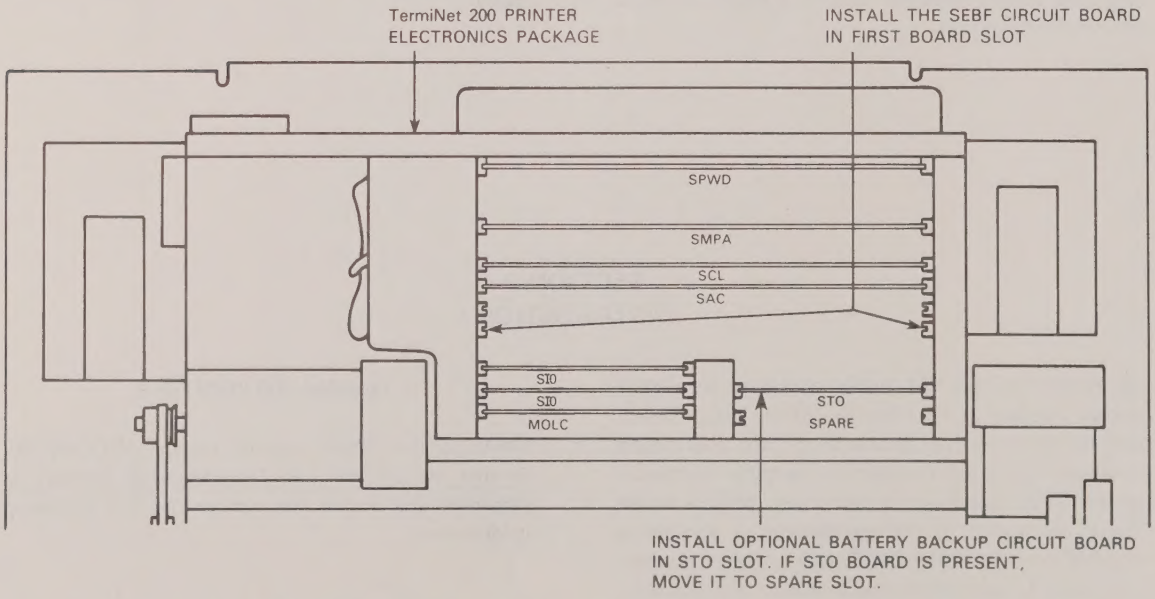
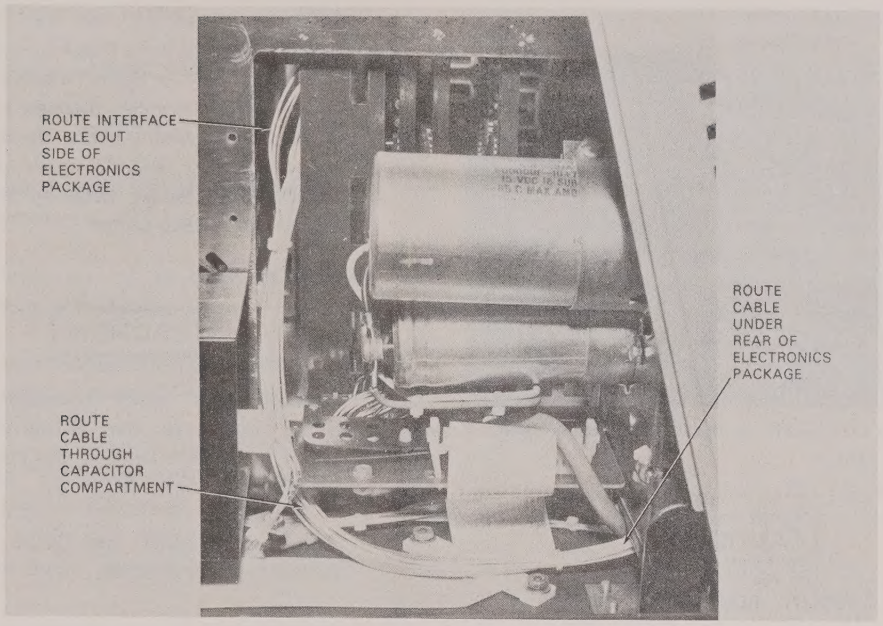


Figure 2-1. TermiNet 200 Printer Edit Buffer Accessory Location

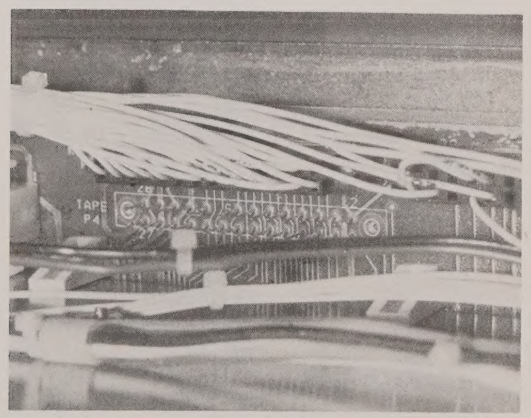
7. Route the other end of the cable through the side of the electronics package and past the corner of the Mother board. Route it so that it exits at the rear of the printer electronics package as shown in Figure 2-2.


ROUTE INTERFACE CABLE OUT SIDE OF ELECTRONICS PACKAGE
ROUTE CABLE UNDER REAR OF ELECTRONICS PACKAGE
ROUTE CABLE THROUGH CAPACITOR COMPARTMENT

793-22-1401

Figure 2-2. Interface Cable Routing in TermiNet 200 Printer

8. Connect the interface cable connector to the printer Mother board connector labeled "TAPE." See Figure 2-3.



7810-26-1601

Figure 2-3. Interface Connector

9. Tighten the connector locking screws. Secure the cable to the rear of the electronics package with an existing cable clamp.

10. Replace the right capacitor cover (A model printer only) and the auxiliary control panel, and close the printer cover.

NOTE

If auxiliary control panel cover removed in Step 2 is the type containing a single row of holes over the STO board slot, replace with cover 44B502843-G01 containing a double row of holes. Later production model printers are equipped with this style cover.

CHECKOUT PROCEDURE WITH BATTERY BACKUP OPTION INSTALLED

1. Put printer in LOCAL mode.

2. Turn AC power switch on.

3. Printer should print, "GE/X TEST OK." (Note – X = Software revision number).

4. Leave AC power on at least ½ hour to partially charge batteries.

5. Switch printer off and then back on again. Printer should print "EDIT OFF."

STORAGE OR SHIPMENT OF SBAT CIRCUIT BOARDS

When packing the SBAT board for storage or shipment, move strap J2 to the J3 position and open switch SW1. On SBAT/1 boards, also remove strap J4. DO NOT wrap board with a high conductivity material such as a foil lined bag. Inserting the board in an anti-static plastic bag having a minimum resistance of 600 OHMS/SQ is the recommended shipping/storage method.

CAUTION

SBAT CIRCUIT BOARDS CONTAIN FIVE NI-CAD BATTERIES CONNECTED IN SERIES. THEY ARE CAPABLE OF SUPPLYING UP TO 58 AMPS OF SHORT CIRCUIT CURRENT WHEN FULLY CHARGED. THIS COULD GENERATE A LOT OF HEAT IF THE BATTERIES ARE SHORTED THROUGH A LOW IMPEDANCE.

TermiNet 1232 PRINTERS

Refer to the printer service manual (GEK-49295 for the TermiNet 1232 Printer) as required, and install the EBA option per the following information.

1. Turn off the printer AC power.

2. Remove the front and rear pedestal covers.

3. Remove any board retaining strips from the circuit board rack.

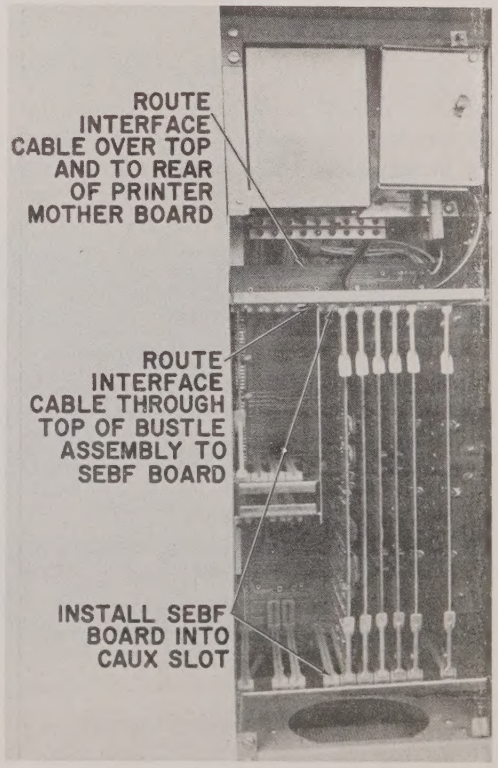
4. Configure the SEBF board per Table 4-1.

5. Refer to Figure 2-4, and install the SEBF board in the board slot labeled CAUX. Make sure there is no interference between the SEBF and CLOG circuit boards. There is very little clearance between the mounting nut of voltage regulator UR3 on the SEBF board and the solder tabs of potentiometer R81 on the CLOG board. Should these two parts make contact, damage to the CLOG board, a power supply, or both will occur. A recommended practice is to: (1) clip off any tab extending above CLOG board connections of R81, and (2) cover the tabs with insulating tape before installing the CLOG and SEBF boards in the printer.

CAUTION

Exercise care when connecting the SEBF board to the printer Mother board to prevent bending the connector pins.

Also, ensure SEBF and CLOG boards do not touch each other.


ROUTE INTERFACE CABLE OVER TOP AND TO REAR OF PRINTER MOTHER BOARD
ROUTE INTERFACE CABLE THROUGH TOP OF BUSTLE ASSEMBLY TO SEBF BOARD
INSTALL SEBF BOARD INTO CAUX SLOT

772-16-1019

Figure 2-4. TermiNet 1232 Printer Edit Buffer Accessory Location.

6. Route the SEBF end of the supplied interface cable through the top of the bustle assembly, and connect it to the SEBF P1 connector.

NOTE

Interface cable 44C415082-G05 must be used on TermiNet 1232 Printers.

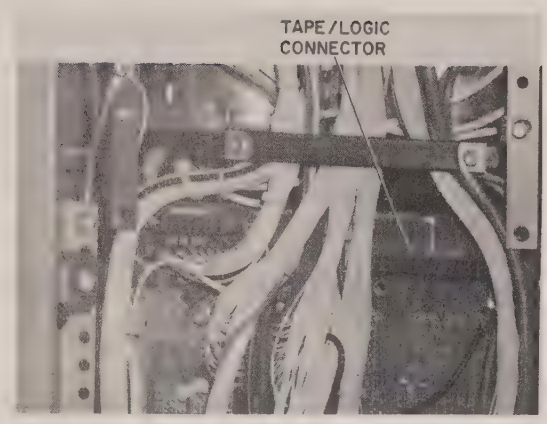
7. Route the other end of the cable up and over the top of the printer Mother board.

8. Connect the cable connector to the rear Mother board connector labeled "TAPE/LOGIC" illustrated in Figure 2-5.

9. Tighten the connector locking screws, and secure the cable with existing cable clamps.

10. Replace the board retaining strips removed in Step 3.

11. Replace the printer pedestal covers.



792-8-1001

Figure 2-5. TermiNet 1232 Printer
Edit Buffer Accessory Cable Connection

CONFIGURATION NOTES

Before installing the Edit Buffer Accessory on a TermiNet 200 Printer (with or without a Battery Backup Option), Table 2-1 below should be checked to ensure that the parts being used are compatible with each other.

TABLE 2-1
EBA - BBU PARTS COMPATIBILITY

SEBF BOARD	EBA ONLY	EBA WITH BBU
SEBF/1 MOD 1 through 6	Use interconnect cable 44C415082-G01 or G04*. Install straps J1, J2, and J3 on SEBF when using G01 cable — Remove straps for G04 cable.	Not available.
SEBF/1 MOD 7 or SEBF/2 MOD 1	Use interconnect cable 44C415082-G04*. These circuit boards have no provision for straps J1, J2, or J3.	Not available.
SEBF/1 MOD 8 or SEBF/2 MOD 2 (Must contain REV 6 software or higher)	Use interconnect cable 44C415082-G04*. These circuit boards have no provision for straps J1, J2, or J3.	Use kit 44A503628-G04. Substitute G02 cable (in kit) for G04 cable. (See note below). Also, auxiliary control panel 44B502843 -G01 must be used.

*Kit 44A503628-G05 contains cable 44C415082-G04, assorted hardware and instructions.

SECTION 3

OPERATION

INTRODUCTION

Operating procedures for a TermiNet Printer containing the edit buffer accessory are unchanged from the procedures found discussed in the applicable printer operator's manual. Specific operations information concerning the edit buffer accessory is contained herein.

GENERAL INFORMATION

Basically, the edit buffer accessory is a data storage device, or buffer, capable of storing data and accepting editing commands. The buffer storage space is divided into two sections. One section is designated the transmit buffer, and the other section is designated the receive buffer. The transmit buffer accepts data and edit commands from the local keyboard while the receive buffer accepts data from a remote on-line source. Data cannot be edited while it is in the receive buffer; however, it can be transferred by command to the transmit buffer for that purpose.

The transmit buffer builds down from the beginning of the storage space while the receive buffer builds up from the end of the storage space. The entire storage space is available as a transmit buffer, as a receive buffer, or as any ratio between the two buffers.

The edit buffer accessory may exist in an editor off state or an editor on state. When off, data can be transmitted or received and operating commands are ignored. When on, data cannot be transmitted or received and operating commands are accepted for appropriate action.

Operation of the edit buffer accessory is controlled by typing certain applicable code commands from the printer keyboard. These code commands may be typed in either upper or lower case. They are typed at the left margin, and they are terminated by a carriage return (CR) and line feed (LF). Certain commands cause a response message to be printed. Some of the messages ask questions which the operator must answer by typing a Y or y for a "yes" reply or an N or n for a "no" reply.

Information data is entered into the storage buffer in line format. The practical line length is limited by the column width of the printer; nevertheless, the edit buffer will accept a line containing 253 characters before any data is lost. Each line of data is terminated with a CR LF sequence. If a CR LF sequence is typed without any accompanying data, a "NULL" line is formed. The NULL line is not written into the buffer; however, it is used to perform several operations which will be discussed later.

ERROR MESSAGES

When commands are given to the edit buffer accessory in a manner which it cannot accept, the printer responds by printing **ERROR**. The **ERROR** message is printed in response to the following conditions:

- Invalid command codes
- Incorrect format for the CHANGE and FIND commands
- Improper DELETE command
- Non-existent line number

NUMBERED LINES

When the edit buffer accessory editor is initially turned on, it exists in a numbered line mode. This mode causes a number to be placed at the beginning of each line of data as it is entered in the transmit buffer with the ADD command. These line numbers are available as an operator convenience and are neither transmitted nor received. The line number mode can be exited by typing the OMIT command and may be re-entered by typing the RESEQUENCE command. Complete details concerning the use of these commands are given later in this section. The line number may be generated by the editor buffer accessory or may be keyboard generated by the operator. When generated by the edit buffer accessory, line numbers are multiples of 10 from 10 through 15990. The equipment always generates for printing a 4 (or 5) digit number which includes leading zeros as appropriate. When keyboard generated, a line number may be any value from 1 through 15999. Any leading zeros may be ignored.

Data received from an on-line source and written in the receive buffer is not numbered. When this data is placed in the transmit buffer for printing or

editing, it may be numbered by employing the RESEQUENCE command.

It is not possible to change a line number with an operating command. Also, a numbered line cannot be located by searching for the line number alone; however, a numbered line can be located and printed by following a LIST command with the number of the desired line. Other operations can be performed using the line number. These will be discussed later in this section.

CONTROL CODE ACTION

The edit buffer accessory can be configured to respond to certain control codes when they are generated from the local keyboard or from an on line source. Configuration is achieved through the use of the MODE command. Complete discussion on the use of this command is provided in the paragraph titled MODE OPTIONS.

The following discussion details the recognizable control codes.

- DC1 (Control Q) - When recognized, this code enables the start of data transmission. Transmission of data to an on line receiver will continue until:
  1. A DC3 or ESC DLE code is encountered in the data stream.
  2. A DC3 code or Interrupt (BREAK) is received from an on line source
  3. The DEL key is typed.
  4. End of data is reached.

- DC2 (Control R) - When recognized, this code enables the reception of data. Reception and storage of data from an on line source will continue on a line-by-line basis until it is stopped by:

  1. A recognized DC4 code
  2. A full buffer
  3. An editor turn on command

NOTE

If the last received line is not terminated by a Carriage Return and line feed or a DC4 code, it is lost.

- DC3 (Control S) - When recognized from an on line source or in the transmitted data stream, this code disables data transmission. Data transmission remains disabled until a DC1 code is recognized.
- DC4 (Control T) - When this code is recognized from an on line source, it terminates the last line of data received. Further data reception is disabled until a DC2 code is recognized.
- ESC DLE (ESC Control P) - When this code sequence is recognized from an on line source or in the data stream being transmitted, the transmit buffer data is rewound. Further data transmission is inhibited until a DC1 code is recognized.

POWER UP

At initial power up when the printer AC power switch is turned on, one of several information messages is printed. The messages are as follows:

- **GE/1 TEST OK** - This message indicates that the edit buffer program and data storage memories have been automatically tested and found to be ready to control the edit buffer operation, and to store data.
- **GE/1 TEST BAD** - This message indicates that the edit buffer program and data storage memories have been tested automatically and found to be deficit in some manner. Edit buffer operation is questionable should this message be printed.

NOTE

The GE/1 indicates the revision of the controlling software program.

If an interruption in AC power occurs, the edit buffer accessory editor is turned off. When AC power is restored to a printer which contains the optional battery backup circuit board, an **EDIT OFF** message is printed. This message indicates that all stored data is saved, and the the edit buffer accessory editor is turned off. When AC power is restored to a printer without the optional battery backup circuit board, an appropriate initial power up message, as discussed above, is generated. All stored data is lost.

OPERATING COMMANDS

The commands used in operating the edit buffer accessory are detailed in the following paragraphs. For convenience, they are summarized on Table 3-2 found at the end of this section.

NOTE

When typing operating commands, be sure that the printer AUTO LF switch is latched down to the ON position. This action causes a Line

Feed (LF) character to be generated each time a Carriage Return (CR) character is typed. With the AUTO LF switch latched on, the CR/LF command termination sequence can be generated by typing the CR key alone.
In the following discussions, wherever a CR character is called for an LF character is required also.

DELETE KEY

Special duties are assigned to the DELETE (DEL) key as discussed below. Because of these duties, the resulting DEL character is not stored in the transmit buffer. However, a DEL character can be received from an on line source and stored in the receive buffer.

CAUTION

NEVER TYPE THE REPEAT (RPT) KEY WHILE TYPING THE DEL KEY.

REMOVING INCORRECT TYPED CHARACTERS

Typed commands and typed data lines can be removed, one character at a time, by typing the DEL key before a carriage return has been typed to terminate the command or line.

When the DEL key is typed, the printer backspaces one column and prints a pound sign (#) over the last character printed. An entire typed command or line of data can be removed one character at a time using the DEL key.

After the pound sign has been printed over the incorrect character using the DEL key, the correct character can be typed. The printer responds to this action by performing a line feed and printing the correct character beneath the pound sign over-printed, incorrect, character.

NOTE

It is recommended that the printer rate switch be set to the 120 character per second position when the DEL key function is employed. Although the over-printed pound signs always reflect the number of characters removed during multiple deletes, the printer could be over driven when set for data speeds lower than 120 characters per second. This is because BACKSPACE, #, BACKSPACE, LINE FEED, CORRECT CHARACTER, must all be printed when an incorrect character is replaced with a correct character.

OTHER USES

The DEL can be typed to stop a listing operation. The list is stopped at the end of the line being printed when the key is typed. Also, the DEL key can be typed to stop a data transmission at the end of the line being transmitted when the key is typed.

TURNING ON/TURNING OFF THE EDITOR

TURN ON

The edit buffer accessory editor is turned on in preparation for future command action per the following sequence. When it is on, on line transmission and reception of data is ignored.

1. Type and hold the control key while typing the O or o key.
2. Type and hold the control key while typing the N or n key.

This action activates the edit buffer accessory editor. The printer will respond to the turn on sequence by printing a message which indicates the status of the buffered data. The message possibilities are:

- **NO DATA** - There is no transmit or receive data.
- **DATA RECEIVED** -- There is received data. This message may be printed with any of the transmit data status messages.
- **DATA SAVED TO SEND** - There is transmit data waiting to be transmitted.
- **DATA SENT** - There is transmit data saved in the buffer although it has been transmitted.
- **PARTIAL TRANSMISSION; PRINT REMAINDER?** -- There is transmit data saved but only part of it has been transmitted. If a local copy was printed during transmission, it may not be necessary to print the remaining data that was not transmitted. If a local copy was not printed, typing YES (Y) will cause the data to be printed.
- **NO DATA TO SEND** -- There is no transmit data.

After a status message or the remainder of the data is printed, a READY message is printed to indicate a readiness to accept edit commands.

TURN OFF

The edit buffer accessory editor is turned off to prohibit further command action. When it is off, transmission and reception of on line data may occur in response to DC1, DC2, DC3, DC4, and ESC DLE (rewind) as conditioned by the mode

options discussed later in this section.
Turn off is accomplished by typing a Z followed by a Carriage Return (CR) or a Z followed by a line number and a CR. The edit buffer accessory responds to either turn off command by printing **EDIT OFF**.

Within the controlling program software, an operation is performed which marks, or points to, the current data line. When the edit buffer accessory editor is turned off with the [Z][CR] command, the data pointer points to the beginning of the stored data. When the [Z][n][CR] command is typed, the data pointer points to the line named by number (n) in the command.

NOTE

If the particular line number does not exist, the printer prints **ERROR**, and the edit buffer accessory editor stays on.

When the ESC DLE code is received from on line, the resulting rewind will be to the data location pointed to by the data pointer as fixed by the turn off command (i.e., beginning of data or line number n depending upon the turn off command employed).

WRITING DATA

The ADD (A) command allows data to be entered into the transmit buffer. The data may be entered with or without prefixed line numbers as provided by the edit buffer accessory. At initial AC power up, the line number included mode is active. This mode remains active unless the operator issues an OMIT command [O][CR] before the ADD command. It is important to note that when line numbers are omitted by command, they can be reinstated by properly issuing a RESEQUENCE command [R][CR]. Complete details concerning the O and R commands are given in the paragraph titled FORMATING STORED DATA.

Data can also be entered into the transmit buffer by issuing a NUMBER command instead of issuing an ADD command. In this mode the operator types a desired line number prefix as opposed to the edit buffer accessory generating one for use.

Discussed in the paragraphs below are both methods of adding data to the transmit buffer.

ADD COMMAND

1. Type [O][CR] to eliminate line numbers if desired.

NOTE

Step 1 is optional. It should not be performed if line numbers are desired.

2. Type [A][CR]. The printer responds to this action by printing this message: **READY**. The printer will also print a line number prefix for the first data line unless Step 1 was performed.

3. Enter a line of data followed by a Carriage Return (CR) Line Feed (LF) sequence. The printer responds by typing the next sequencial line number if Step 2 was not performed.

4. Subsequent lines of typed input data can be added to the transmit buffer. Each new line of data is appended to the presently stored data.

NOTE

If the line number mode is active, the new line of data is added at the end of the presently stored data.

If the line number mode is not active and the editor has just been turned on, the new line of data is added at the end of the presently stored data.

If the line number mode is not active and the editor is on with data entry having previously occured, the new line of data is added after the current line.

Data entry can continue until the transmit buffer is filled. At this point, any further data entry will cause the printer to print this message: **OVERFLOW**.

5. Blank lines can be added to the buffer by typing the LF key without a corresponding CR.

6. Exit the ADD mode by typing a NULL line (i.e., type a CR LF sequence with no preceding data).

7. The printer responds to the NULL line by printing this message: **READY**.

LINE NUMBER COMMAND

Add data with a LINE NUMBER command per the following procedure.

1. Type a line number followed by a space or dash and a line of data. Any leading zeros associated with the line number do not have to be typed (e.g., type 1 for line 1, 11 for line 11, 123 for line 123, etc.)

2. Terminate the line with a Carriage Return (CR) Line Feed (LF) sequence.

3. This new numbered line of data is stored in numerical sequence in the transmit buffer.

NOTE

The new data replaces any data currently stored with the same line number.

READING STORED DATA

Several command operations are available which will cause previously stored data to be read and printed. Each of these commands can be issued after the edit buffer accessory editor has been turned on, and are issued as discussed in the ensuing paragraphs.

BEGIN COMMAND

To obtain a print out of the first line of data stored in the transmit buffer, type: [B][CR]. If there is no data stored, this message is printed: **END**.

END COMMAND

To obtain a print out of the last line of data stored in the transmit buffer, type: [E][CR]. If there is no data stored, this message is printed: **END**.

NEXT COMMAND

To obtain a print out of the line of data following the last line of data printed, type [N][CR]. Each time the command is typed, the next line of stored data is printed. If no further data is stored, an N command will result in the printing of this message: **END**.

NOTE

Typing a NULL line (CR LF without preceding data) will cause the same effect as typing subsequent N commands.

PREVIOUS COMMAND

To obtain a print out of the line of data preceding the last line of data printed, type [P][CR]. Each time the command is typed the previous line of stored data is printed. If no previous data is stored, this message is printed: **BEGIN**.

NOTE

Typing a NULL line (CR LF without preceding data) will cause the same effect as typing subsequent P commands.

LIST ALL STORED DATA

To obtain a print out of all data stored in the transmit buffer, type [L][CR]. The printer will print the entire transmit buffer stored contents followed by the **END** message. It is possible to stop a listing operation while it is in progress by typing the DELETE key. This action causes the listing operation to stop at the end of the line being printed when the DELETE key is typed.

LIST A NUMBERED LINE

To obtain the print out of a specific numbered data line, type [L][n][CR]. The printer will respond by printing the data line prefixed by the typed number (n). If the specified line is not stored, the printer prints the **END** message.

A series of numbered data lines can be printed by specifying the desired number span when typing the command as follows: [L][n_1][-][n_2][CR]. All data lines beginning with line n_1 and through line n_2 are printed.

LIST CONTROL CODES

If an up arrow (↑) character (or caret (Δ) on some printers) is typed after the L command as follows: [L][↑][CR], the included control codes of each stored data line are printed as printable characters. The command [L][↑][n][CR] or [L][↑][n1][-][n2][CR] can be typed to obtain a print out of the control codes in a specific line or lines of data. The print out includes an up arrow (↑), or caret (Δ), and a printable character which represents the specific control code. For example, an ETX code is printed as ↑C and a DC3 code is printed as ↑S. The chart given below (Table 3-1) details the printable characters employed.

TABLE 3-1
CONTROL CODE REPRESENTATION

CONTROL CODE	PRINTABLE CHARACTER	CONTROL CODE	PRINTABLE CHARACTER
NUL	@	DLE	P
SOL	A	DC1	Q
STX	B	DC2	R
ETX	C	DC3	S
EOT	D	DC4	T
ENQ	E	NAK	U
ACK	F	SYN	V
BEL	G	ETB	W
BS	H	CAN	X
HT	I	EM	Y
LF	J	SUB	Z
VT	K	ESC	[
FF	L	FS	\
CR	M	GS	]
SO	N	RS	^
SI	O	US	—

The commanded list control code mode remains active and applies to all data lines printed by any other command until a new LIST command is typed without the up arrow character.

NOTE

When control codes are transformed to printable characters through the use of the up arrow character in the list command, their normal control action is inhibited.

When a list command including an up arrow character is typed, it cannot be repeated by typing a NULL line. If this action is taken, the stored data is listed again without having the control codes transformed to printable characters.

LOCATING STORED DATA

Specific stored data can be located and printed using the FIND (F) command. The procedure for doing so is per the following steps.

1. Type the following information:
   (a) F
   (b) / (slash character)

   NOTE

   The slash character is used as a delimiter. The delimit character may be any character including a space. The slash is chosen for convenience only.

   (c) Character string - A string of 1 to 16 characters of the desired data.
   (d) / (slash)

2. The equipment response is to search from the beginning of the stored data and print the first occurrence of the located data line. An **END** message is printed if the searched for data line is not located.

3. Additional data lines containing the same search string can be located by repeatedly typing an F. The printer will print the next line located by this command each time it is typed, or if no further lines exist, print the **END** message. The current search string remains active until it is displaced by a new search string or AC power is cycled, and can be used as needed throughout an edit buffer accessory use session.

   NOTE

   Typing the NULL line (CR LF without preceding data) will cause the same effect as typing subsequent F characters.

CHANGING STORED DATA

Stored data can be altered through the use of the CHANGE command. Issue the command per the procedure detailed below.

1. If possible, locate the desired data line to be changed by employing a B, N, P, or F command (discussed previously).

   NOTE

   The CHANGE command can be issued without first employing a locating command. If this action is taken, the change is made to the first occurrence of the desired data which resides between the beginning of the current data line (last line read and printed) and the end of the last data line stored. Depending upon the location in the transmit buffer of the last line read and printed when the command is issued, it is possible that not all of the stored data lines will be examined for the desired data.

2. C
3. / (slash)
4. Characters in the line to be changed (1 to 16)
5. / (slash)
6. New characters to be added (0 to 16)

   NOTE

   If the new data exceeds 16 characters, the CHANGE command will have to be issued more than once with a portion of the change occuring with each command.

7. / (slash)

8. The equipment responds by printing the first occurrence of the data line with the Step 6 data in place of the Step 4 data.

9. Additional data lines containing the same string data can be changed by typing C. The current change information (old and new characters) remains active until it is displaced by new change information or AC power is cycled, and can be ued as needed throughout an edit buffer accessory use session.

NOTE

Typing the NULL line (CR LF without preceding data) will cause the same effect as typing subsequent C characters.

10. The printer responds to the Step 9 action by printing the line as changed. If no additional lines containing the sring are found, the printer prints the **END** message.

FORMATING STORED DATA

Line numbers can be prefixed to or removed from stored data lines by command action.

ADDING LINE NUMBERS (RESEQUENCE COMMAND)

To prefix line numbers to stored data lines, type [R][CR]. The printer prints the **READY** message to indicate line numbers have been added to the stored data lines. The numbers added will be in multiples of 10 beginning with 0010 through 15900. If the stored data already contains prefixed line numbers, these numbers will be resequenced to multiples of 10. This means that lines of data which were added using the LINE NUMBER command will have their line numbers changed to fit the multiple of 10 sequence.

REMOVING LINE NUMBERS (OMIT COMMAND)

Remove the prefixed line numbers from stored data lines by typing [O][CR]. The printer prints the **READY** message to indicate that the line numbers have been removed.

When data received from a remote source and written into the receive buffer is transferred to the transmit buffer for editing and printing, the omit line number mode of operation is entered automatically.

MODE OPTIONS

When the mode command is typed: [M][CR], the printer responds by printing a list of six (6) operating mode options and their current status. The listed options are printed one at a time with a hold after each one for an operator typed response. If the current status as it is printed is desired, the operator need only type the RETURN key to cause the status to be retained and the next line to be printed. If a new status is desired, type [Y][CR] for yes or [N][CR] for no. The printer will then print the next mode status for consideration. At the end of the session, the printer prints **READY** to indicate another command is awaited. Each mode option is discussed in detail below.

1a. **TRANSMIT ON - Y?** This option and status means that if edit buffer accessory editing function is off, a received DC1 code from the proper source (see mode option 3 and 4) will cause data to be transmitted over the line. Data will be transmitted until the end of data is reached, a DC3 code is recognized or received, an interrupt (BREAK) is received, or the operator types the delete (DEL) key.

1b. **TRANSMIT ON - N?** This status inhibits the transmission of data to an on-line receiver.

2a. **RECEIVE ON - Y?** This option and status means that if edit buffer accessory editing function is off, a received DC2 code from the proper source (see mode option 3 and 4) will cause data received over the line to be stored in the receive buffer. Data reception and storage can continue until the buffer space is full, or until a DC4 code is received. If the last line received is not terminated by a CR LF sequence or a DC4 code, it will not be stored.

2b. **RECEIVE ON - N?** This status inhibits the reception and storage of on-line received data.

3a. **RECEIVED DC# - Y?** This option and status means that the edit buffer accessory (if the editing function is off) will respond to received DC1, DC2, DC3, and DC4 codes.

3b. **RECEIVED DC# - N?** With this status set, the edit buffer accessory will ignore received DC1, DC2, DC3, and DC4 codes. If mode option 6 has a yes (Y) status, the edit buffer accessory will transmit an interrupt (BREAK) if a DC2 code is received. Data will not be stored.

4a. **KEYBOARD DC# - Y?** This mode option and status allows the edit buffer accessory (if the edit function is off) to respond to keyboard generated DC1 (CTL Q), DC2 (CTL R), DC3 (CTL S), and DC4 (CTL T) codes.

4b. **KEYBOARD DC# - N?** With the N (no) status set, the edit buffer ignores the keyboard generated DC codes.

5a. **TRANSMIT DC3 - Y?** This option mode and status allows the recognition and transmission of a DC3 code included in the data being transmitted. Further data transmission is inhibited after the DC3 code is transmitted. Data transmission stays inhibited until a DC1 code is recognized.

5b. **TRANSMIT DC3 - N?** This status inhibits the transmission of a DC3 code included in the data being transmitted. Further data transmission is inhibited after the DC3 code is recognized. Data transmission stays inhibited until a DC1 is recognized.

6a. **SEND BREAK - Y?** The Y (yes) status set with this option mode enables the transmission of an interrupt (BREAK) signal. The BREAK signal is transmitted when:

- There is not enough storage space available for the last line of received data.
- There is no storage space available when a DC2 code is received.
- A received mode option status is N (no) (2b) and a DC2 code is received.
- A received DC# mode option status is N (no) (3b), and a DC2 code is received.

6b. **SEND BREAK-N?** The N (no) status inhibits the transmission of a BREAK signal by the edit buffer accessory.

AVAILABLE BUFFER STORAGE CAPACITY

When the storage space available command is typed: [S][CR], the printer responds by printing a value representative of the available unused buffer storage space. The value typed is rounded off to a multiple of 1/4K. Thus, a typical printer response may be **2-1/4K**.

NOTE

IK equals 1024 character spaces; therefore, 1/4K equals 256 character spaces. Because of some external storage space needs, 1K typically can be considered as 1000 character spaces available for external data storage.

When during data entry the available storage space is exceeded, the printer responds by printing this message: **OVERFLOW**. When an **OVERFLOW** message is printed in response to an entered data line, that line is not stored.

DELETING STORED DATA

The DELETE (D) Command, when typed as follows: [D][CR], causes the current line (last line printed) to be deleted from the transmit buffer. When a delete command is executed by the printer, the following message is printed: **LINE DELETED**. The delete command cannot be repeated by retyping the command or by typing a NULL line (CR LF without data). Each line of data to be deleted must first be printed. A NEXT (N) command or a PREVIOUS (P) command can be typed prior to each DELETE command to remove consecutive lines of data from the transmit buffer.

DELETING A NUMBERED LINE

When the stored data exists in a line numbered mode, it can be deleted by typing the following command: [LINE NUMBER][CR] . When this command is typed, the specified line is located and printed. After the numbered data line is printed, the line number and the data are deleted from the storage buffer, and the **LINE DELETED** message is printed. If the specified line does not exist, no action takes place when the command is typed.

ERASING OR EXCHANGING BUFFER CONTENTS

The entire data storage area can be erased or the stored data can be exchanged from receive buffer to transmit buffer through the use of the X command. When [X][CR] is typed, a sequence of questions are printed which require a typed response. These questions relate to specific data conditions as detailed below.

1. If there is transmit data, the question **ERASE TRANSMIT DATA?** is printed. If

a Y (Yes) response is typed, the transmit data is erased. If a N (no) response is typed, the transmit data is saved.

2. If there is receive data, the question **ERASE RECEIVE DATA?** is printed. A Y (Yes) response results in the receive data being erased. A N (No) response results in the receive data being saved.

3. If there is saved transmit and/or receive data, the question, **SWAP?**, is printed. A Y (Yes) response results in the data contents of the receive and transmit buffers being exchanged. A **DONE** message is printed to indicate that a Y (Yes) response to the last question asked was given and that the operation was performed. A N (No) response results in the printer printing the **READY** message to indicate that no action was taken and that further command action is awaited.

NOTE

If a buffer storage area is erased before a data interchange is enabled, the other buffer storage area is erased after the interchange takes place.

4. If neither transmit nor receive data is saved, the printer prints the **READY** message as a response to the typed [X][CR] command.

ON-LINE OPERATION

After the edit buffer accessory edit function has been turned off by the Z command, a data path is established between the local printer and a remote terminal. The contents of the transmit buffer can be transmitted and the receive buffer can be written into.

On-line communications control is through the use of the recognizable control codes discussed previously in the paragraph titled CONTROL CODE ACTION.

TABLE 3-2

OPERATING COMMAND SUMMARY

COMMAND CATEGORY	COMMAND DESCRIPTION	COMMAND CODE TYPED	COMMAND ACTION
	NOTE When typing any of the commands listed below, be sure the printer AUTO LF switch is latched down to the on position.		
Turn On and Turn Off	On	[CTL][O][CTL][N]	Turns edit function on in preparation for further command action.
	Off	[Z][CR]	Turns edit function off and prohibits further command action. Transmission and reception of on line data is enabled.
Writing Data Into Memory Storage	Add Line of Data NOTE Edit buffer may supply numbered line for data to be entered on if that format is active.	[A][CR]	Allows data following command to be added to transmit buffer. **READY** message printed in response to add command. Exit add data mode by typing NULL line (CR without preceding data). **READY** message printed in response to NULL line.
	Add Operator Numbered Line of Data	[n][-][data][CR]	Adds line of desired data preceded by desired line number (n). Replaces any data currently existing at that line number. Adds any new data (in sequence) with existing data. Line numbers 1 through 15999 allowed.

Continued

Table 3-2 — Continued

COMMAND CATEGORY	COMMAND DESCRIPTION	COMMAND CODE TYPED	COMMAND ACTION
Locating and Reading Stored Data NOTE Data Stored in receive buffer must be placed in transmit buffer before it can be read	Beginning Data Line	[B] [CR]	Causes first line of stored data to be printed.
	End Data Line	[E] [CR]	Causes last line of stored data to be printed.
	Finding a Data Line	[F] [/] [Character String] [/] [CR]	Locates and prints data line containing data referenced by character string of 1 to 16 characters. Finds first occurrence beginning with the first data line through to end of the buffered data.
	Find Continue	[F] [CR]	Continues last issued FIND command for next occurrence of character string beginning with data line following first line found.
	List Data	[L] [CR]	Causes all stored data to be printed.
Reading Stored Data Continued	List One Numbered Data Line	[L] [n] [CR]	Data line preceded by number (n) is printed.
	List Series of Numbered Data Lines	[L] [n_1] [-] [n_2] [CR]	Data lines preceded by numbers n_1 through n_2 are printed.
	List Stored Control Codes	[L] [↑] [CR] or [L] [↑] [n] [CR] or [L] [↑] [n_1] [-] [n_2] [CR] NOTE Typing up-arrow (or caret on some printers) denotes control code.	Control codes contained in data lines are printed as ASCII characters (e.g., ESC C prints as ↑ (C). Line numbers can be included to isolate specific lines of data for examination. NOTE Command causes entrance into transform control code mode. This mode remains in effect for all later issued commands until exited by typing a regular list command: [L] [CR]. Regular control code action is inhibited.
	Next Data Line	[N] [CR]	Causes data line following current data line (last line printed) to be printed.
	Preceding Data Line	[P] [CR]	Causes data line preceding current line to be printed.
Editing Stored Data	Change Portion of Data Line	[C] [/] [OLD] [/] [NEW] [/] [CR]	Replaces existing data with new data. Current data (old) is referenced by string of 1 to 16 characters. Replacement data (new) can consist of 0 to 16 character string. Change made to first occurrence of existing data beginning with current data line through to end of data stored.
	Change Continue	[C] [CR]	Continues last issued change command for next occurrence of existing data.
Formating Stored Data	Omit Line Numbers	[O] [CR]	Causes line numbers to be erased from currently stored data and to not be included with newly added data. Printer prints **READY** in response to OMIT command. NOTE When receive buffer data is moved to transmit buffer OMIT mode is entered.

Continued

Table 3-2 — Continued

COMMAND CATEGORY	COMMAND DESCRIPTION	COMMAND CODE TYPED	COMMAND ACTION
Formating Stored Data	Mode Options	M CR	Causes editor to respond by printing six mode option questions. Questions are printed one at a time showing current status and awaiting operating typed response (i.e., Y for YES or N for NO). NOTE Current status can be maintained by typing CR as a response to each mode option question as applicable.
	Resequence Line Numbers	R CR	Causes line numbers to be added to currently stored data and to be included with newly added data. Line numbers are added in multiples of ten beginning with 0010.
Status of Storage Area	Storage Space Available	S CR	Amount of storage space available is calculated and printed.
Removing Stored Data	Delete Current Line	D CR	Causes current data line (last line printed) to be erased from transmit buffer.
	Delete Numbered Line	Line Number - CR or Line Number - CR	Causes data existing at desired line number to be printed and erased from transmit buffer.
	Erase or Exchange Stored Data	X CR	Causes editor to ask questions based on storage content status. Questions must be answered by typing Y for YES or N for NO. YES answers result in erasure or exchange of stored contents.

SECTION 4
MAINTENANCE

TROUBLESHOOTING – SEBF

Troubleshooting methods used on a printer which contains an edit buffer accessory do not differ from the methods detailed in the TermiNet 200 Printer Service Manual, GEK-49330 or the TermiNet 1232 Printer Service Manual, GEK-49295. Information useful for isolating a failure to the SEBF circuit board is provided in the following paragraphs.

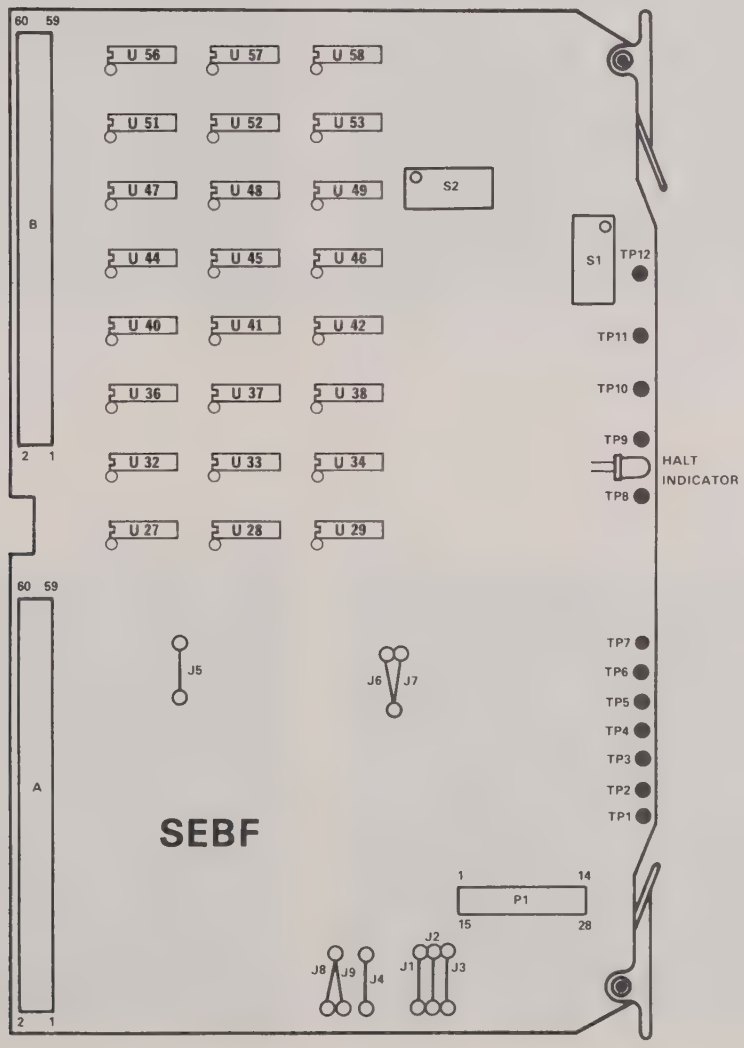


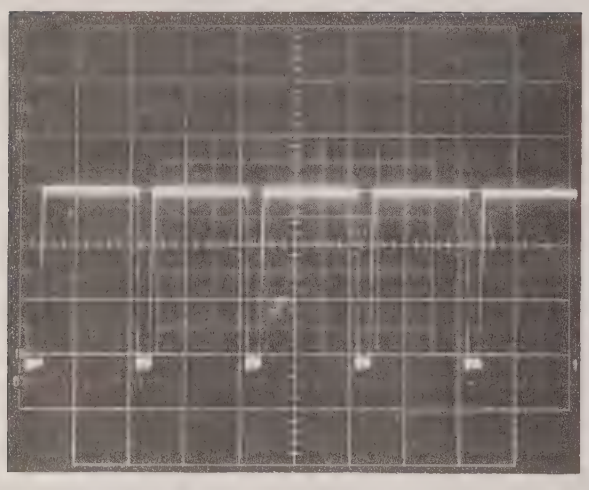
Figure 4-1. SEBF Circuit Board Outline.

TEST POINTS

Twelve test points are available for use in determining a board failure. Some provide operational voltage waveforms while others provide DC voltage levels. The test point information is detailed below.

TEST POINT 1

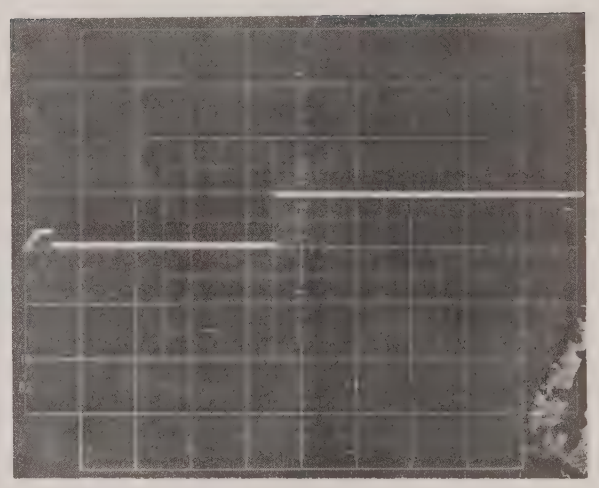
Signal Name: $\overline{PH1}$



HORIZONTAL: 5 μ seconds/division
VERTICAL: 5 volts/division

TEST POINT 4

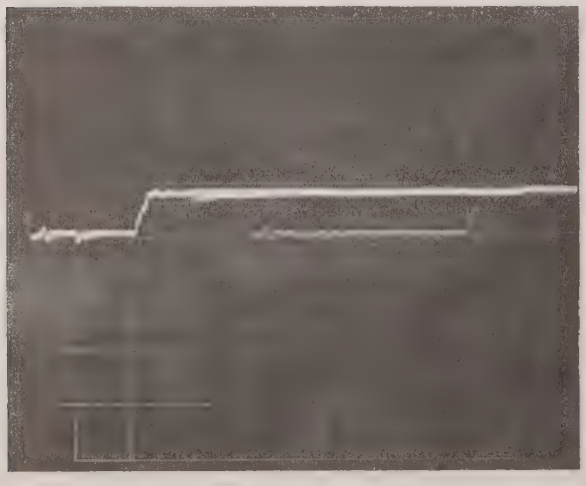
Signal Name: $\overline{RESET}$



HORIZONTAL: 20 μ seconds/division
VERTICAL: 5 volts/division

TEST POINT 2

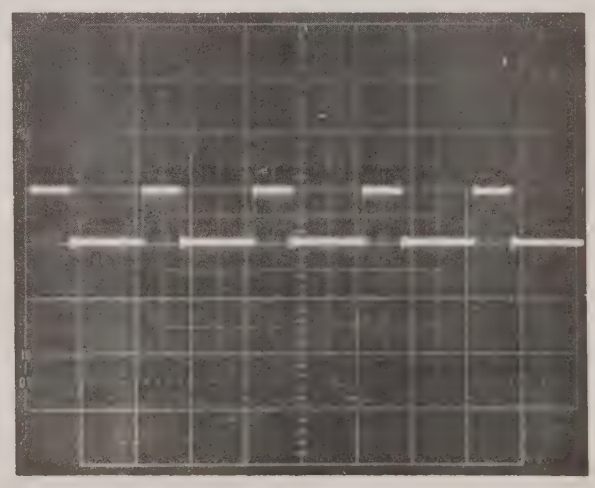
Signal Name: $\overline{RAS}$



HORIZONTAL: .2 μ seconds/division
VERTICAL: 5 volts/division

TEST POINT 5

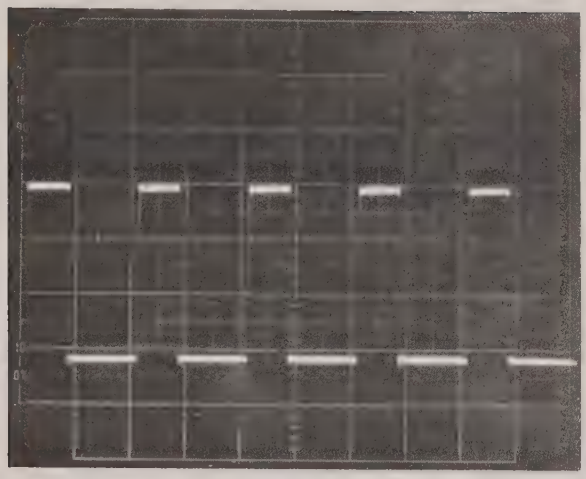
Signal Name: $\overline{BI02}$



HORIZONTAL: 5 μ seconds/division
VERTICAL: 5 volts/division

TEST POINT 6

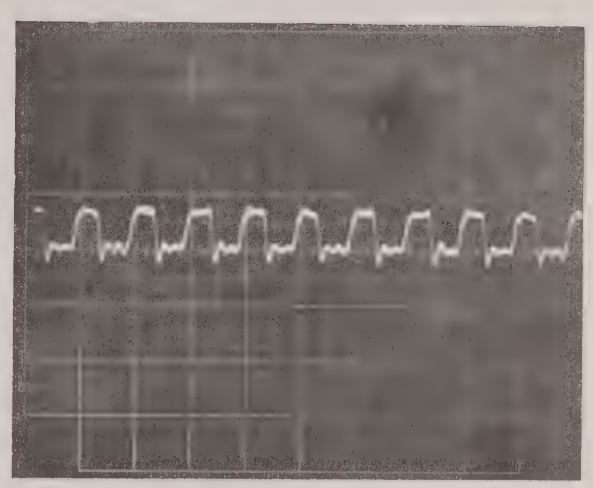
Signal Name: $\overline{PH2}$



HORIZONTAL: 5 μ seconds/division
VERTICAL: 5 volts/division

TEST POINT 8

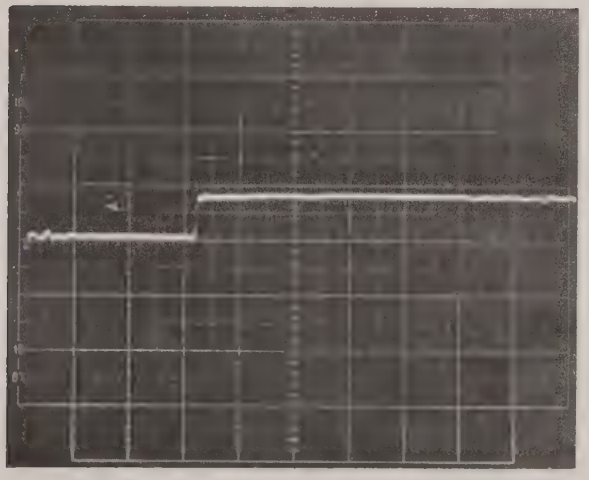
Signal ZØ



HORIZONTAL: .1 μ seconds/division
VERTICAL: 5 volts/division

TEST POINT 7

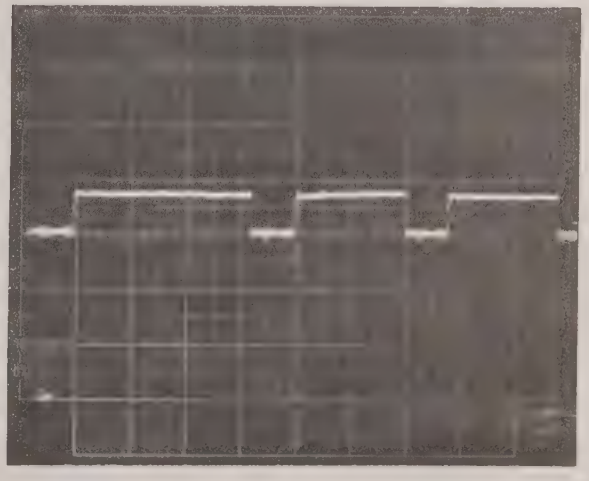
Signal Name: $\overline{CASEN}$



HORIZONTAL: .2 μ seconds/division
VERTICAL: 5 volts/division

TEST POINT 9

Signal Name: $\overline{RFSH}$



HORIZONTAL: 1 μ second/division
VERTICAL: 5 volts/division

TEST POINT 3

DC Voltage: 0 Volt Reference

TEST POINT 10

DC Voltage: +12 DC

TEST POINT 11

DC Voltage: -5V DC

TEST POINT 12

DC Voltage: +5V DC

LED INDICATOR

The LED indicator will illuminate whenever the microprocessor on SEBF is in a HALT condition.

TROUBLESHOOTING – SBAT

Information useful for isolating a failure to the SBAT circuit board is included below.

TEST POINTS

Test points are available when troubleshooting for use in determining bus voltage on the SBAT board. These are listed as follows.

TEST POINT 1: 0V

TEST POINT 6: +5V

All other test points are for factory use and are not useful for field service work.

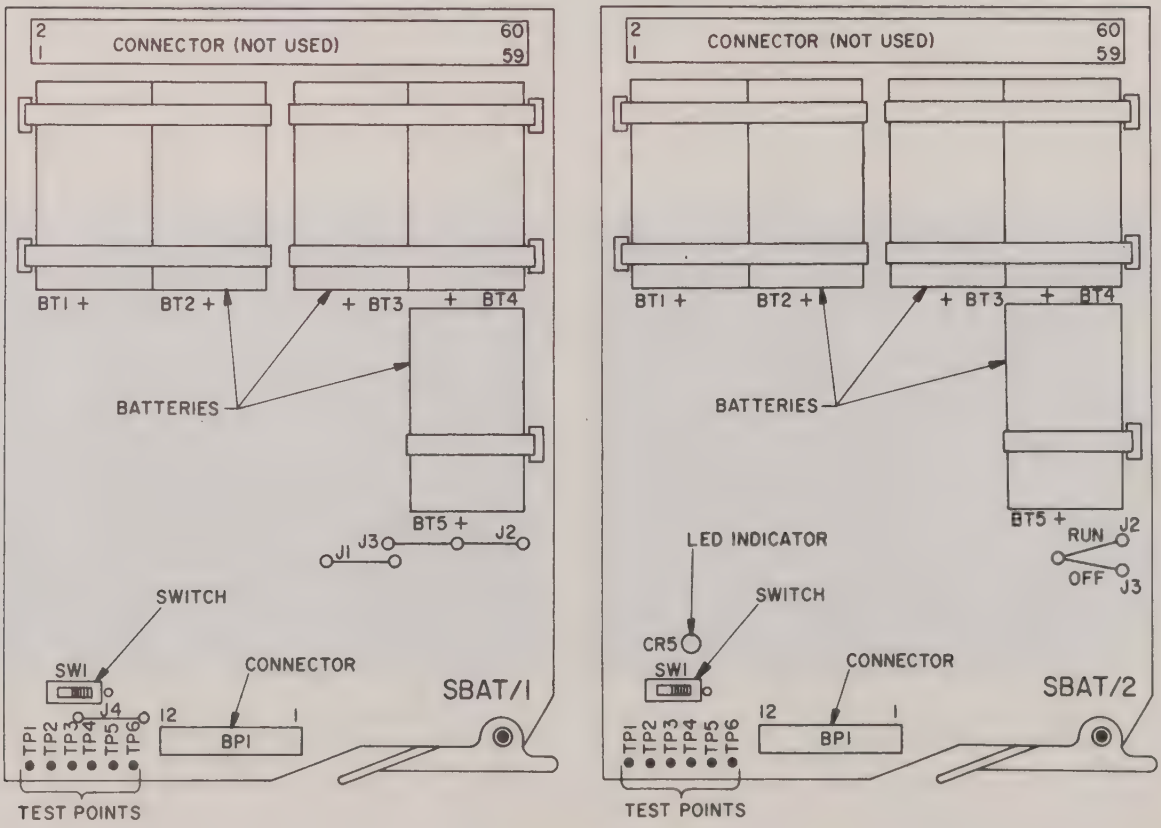


Figure 4-2. SBAT/1 and SBAT/2 Circuit Board Outline

LED INDICATOR

The LED indicator (on SBAT/2 boards only) will illuminate whenever the batteries on the SBAT board are supplying power to the memory on the SEBF board. This indicator is located near switch SW1.

TROUBLESHOOTING GUIDE

The following troubleshooting guide may be used to isolate operating problems.

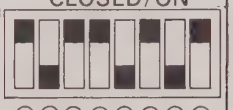
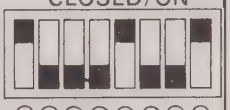
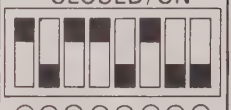
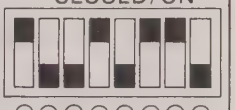
TROUBLESHOOTING CHART

SYMPTOM	POSSIBLE CAUSE
1. "GE TEST OK" not printed when printer is first turned on.	1. Printer not in "LOCAL" mode. 2. One or more of bus voltages (+5V, +12V, -5V) incorrect. 3. SEBF defective. Verify by removing cable connections from SBAT and SEBF to printer and connecting the cable 44C415082-G04 from SEBF to printer. Apply AC power and check SEBF operation.
2. After switching AC power off and then back on "EDIT OFF" not printed.	1. S1 on SBAT not closed. 2. J9 on SEBF not installed. 3. Inadequate battery capacity. Leave power on for at least ½ hour to allow batteries to partially charge. 4. SBAT defective.

STRAPPING OPTIONS

The SEBF and SBAT circuit boards contain strapping options which control the functional operation of the circuitry. The strapping options are detailed in Table 4-1.

TABLE 4-1
SEBF STRAPPING CONFIGURATIONS

STRAPPING FUNCTION	STRAP/SWITCH CONFIGURATION
Allows 2K of PROM addressability from memory location 0000 to memory location 07FF and an additional 2K of PROM addressability from memory location 0800 to memory location OFFF. Allows 4K of RAM addressability (See Note)	S1 CLOSED/ON  ①②③④⑤⑥⑦⑧ OPEN/OFF S2 CLOSED/ON  ①②③④⑤⑥⑦⑧ OPEN/OFF Also, set J7 IN and J6 OUT
Allows 2K of PROM addressability from memory location 0000 to memory location 07FF and an additional 2K of PROM addressability from memory location OFFF. Allows 16K, 32K or 48K of RAM addressability (See Note)	S1 CLOSED/ON  ①②③④⑤⑥⑦⑧ OPEN/OFF S2 CLOSED/ON  ①②③④⑤⑥⑦⑧ OPEN/OFF Also, set J6 IN and J7 OUT

NOTE
Strapping configuration is dependent upon amount of optional memory available.

ADDITIONAL STRAPPING	STRAP IN	STRAP OUT
Enables the use of battery backup option. (SEE TABLE 2-1)		J1, J2, J3
*Disables the use of the battery backup option. (SEE TABLE 2-1)	J1, J2, J3	
*Allows operation with TermiNet 200 Printer		J4
Allows operation with TermiNet 1232 Printer	J4	
Fixed Strapping. Do not change.	J5	
At equipment power up, allows a simulated battery voltage to disable the generation of the LOW BATTERY message and enables a RESET signal and a loss of voltage (NMI) signal.	J8	J9
*At equipment power up, allows proper battery voltage of battery back up option to disable the generation of the LOW BATTERY message and enables a RESET signal and a loss of voltage (NM) signal.	J9	J8

*Standard strapping as shipped from the factory.

TABLE 4-1A
SBAT STRAPPING OPTIONS

STRAPPING FUNCTION	STRAP IN	STRAP OUT
*Places resistors R28 and R22 in parallel to provide the correct resistance with standard capacity batteries.	J1	
Allows use of R22 alone in the event that battery cells of a lower capacity were ever used.		J1
*Disconnects batteries from the circuit.	J3	J2
Connect batteries to the circuit. Also, on SBAT/2 boards, connector pin BP1-10 is disconnected from the circuit.	J2	J3
*Not used — leave out.		J4
	CLOSED	OPEN
*Disconnects batteries from the circuit. Switch should be this way when board is shipped/stored.		SW1
Connects batteries to the circuit. Switch should be this way for normal operation.	SW1	

NOTE
STRAP OPTIONS J1 AND J4 ARE
NOT AVAILABLE ON SBAT/2 BOARDS.

*Standard strapping as shipped from the factory.

MEMORY CIRCUIT OPTIONS

The SEBF board can be optionally configured to provide 4, 16, 32 or 48 K of data storage capacity. This memory storage is provided by either 44A418699 -001, 512 bit, RAM ICs (labeled 2104) or 44A501439 -001, 2K bit, RAM ICs (labeled 4116). Refer to Table 4-2 for details, and to Figure 4-1 for a layout illustration of the RAM IC's.

TABLE 4-2. MEMORY STORAGE OPTION IC REQUIREMENTS

OPTIONAL MEMORY STORAGE CAPACITY	IC TYPE AS LABELED	U LOCATIONS EMPLOYED (REFER TO FIGURE 4-1 FOR ILLUSTRATION)
4K	2104 A418699-001	U27, U32, U36, U40, U44, U47, U51, & U56
16K	4116 A501439-001	U27, U32, U36, U40, U44, U47, U51, U56
32K	4116 A501439-001	U27, U28, U32, U33, U36, U36, U37, U40, U41, U44, U45, U47, U48, U51, U52, U56, & U57
48K	4116 A501439-001	U27, U28, U29, U32, U33, U34, U36, U37, U38, U40, U41 U42, U44, U45, U46, U47, U48, U49, U51, U52, U53, U56, U57, & U58

PART NUMBERS

Pertinent part numbers associated with the edit buffer accessory and battery backup option are as follows:

44A-------G09 (See note)	SEBF circuit board with program and 4K of data storage memory.
44A-------G209 (See note)	Same as above only 16K of data storage memory.
44A-------G509 (See note)	Same as above only 32K of data storage memory.
44A-------G809 (See note)	Same as above only 48K of data storage memory.
44A-------G19 (See note)	Program chip set.

NOTE

See Service Advice 80-23.0 for complete latest part number.

44A501439-001	2K memory chip.
44A503106-G01	Edit Buffer Accessory. Includes program chips installed on a SEBF circuit board, an interface cable, and 4K of data storage memory.
44A503107-G01	Same as above but with 16K of data storage memory.
44A503108-G01	Same as above but with 32K of data storage memory.
44A503109-G01	Same as above but with 48K of data storage memory.
44A503628-G04	Battery Backup kit. Includes interface cable 44C415082-G02, SBAT board 44B502411-G01, two screws N57P5010C and nylon cable tie 44A417098-001.
44A503628-G05	EBA-BBU to EBA only conversion kit. Includes two screws N57P5010C, nylon cable tie 44A417098-001 and interface cable 44C415082-G04.
44B502411-G01	Battery Backup Option Circuit Board (SBAT).
44B502411-G02	Replaces G01.
44C415082-G02	Interface cable connects SEBF and SBAT to TermiNet 200 Printer.
44C415082-G04	Interface Cable. Connects SEBF to TermiNet 200 Printer.
44C415082-G05	Interface cable for TermiNet 1232 Printer.
44C502508-G01	SEBF circuit board without program chip set or data storage memory.
44C502508-G02	Replaces G01.

SERVICE DRAWINGS

The following drawings are included to aid in servicing the edit buffer accessory.

Elementary Diagram for SEBF Circuit Board	44D401744, Sheets 1, 2, 3 and 4.
Elementary Diagram for SBAT Circuit Board	44C402432, Sheets 1 and 2.
Interface Cable for TermiNet 200 Printer	44C415082, Sheets 2, 4
Interface Cable for TermiNet 1232 Printer	44C415082, Sheet 5.

SECTION 5

REFERENCE GUIDE

This section contains descriptions and many useful examples to assist the user.

Table 5-1 below summarizes the commands, and the following pages contain descriptive examples of the commands in alphabetic sequence.

NOTE

IN THE EXAMPLES, USER INPUT IS UNDERLINED; AND THE SYMBOL @ DENOTES THE USER - TYPED RETURN LF SEQUENCE. COMMANDS MAY BE REPEATED BY TYPING RETURN LF.

TABLE 1. COMMAND SUMMARY

↑O↑N	EDITOR ON
0-9	LINE NUMBER COMMANDS
123 XYZ	ADDS (OR REPLACES) LINE 123
456	DELETES LINE 456
A	ADD LINE(S) OF DATA
B	BEGINNING LINE
C/OLD/NEW/	CHANGE A STRING OF DATA
C	CHANGE CONTINUE
D	DELETE A LINE OF DATA
E	ENDING LINE
F/STRING/	FIND A STRING OF DATA
F	FIND CONTINUE
L	LIST LINE(S) OF DATA
L	LIST ALL LINES
L↑23	LIST LINE NUMBER 123
L456-789	LIST LINES 456 THRU 789
L↑...	LIST CONTROL CODES LIKE ↑G
M	MODE OPTIONS
N	NEXT LINE OF DATA.
O	OMIT LINE NUMBERS
P	PREVIOUS LINE OF DATA
R	RESEQUENCE LINE NUMBERS
S	STORAGE SPACE AVAILABLE
T	TAPE INPUT DATA
X	ERASE DATA
Z	EDITOR OFF

0 THRU 9 (FIRST CHARACTER) — LINE NUMBER COMMANDS

Lines of data can be added, replaced (changed), or deleted by this command. When the user types a line number, delimited by a space or dash, and a line of data, the editor searches for that line number. If the line number exists, the new data line replaces it. If the line number does not exist, the new data line is added (inserted) in line number sequence.

When the user types a line number (with or without a delimiting space or dash) followed by the RETURN key without a line of data, the editor searches for that line number. If the line number exists, the data line is printed and then deleted as indicated by the printing of LINE DELETED. If the line number does not exist, there is no action or response.

EXAMPLE 1. USING LINE NUMBER COMMANDS

```
L@                          LISTING THE DATA BEFORE
0010 FIRST LINE
0020 SECOND LINE
0030 THIRD LINE
0040 FOURTH LINE
END
15 LINE ADDED@              LINE ADDED BETWEEN LINE NUMBERS 10 AND 20
30@                         LINE NUMBER WITHOUT DATA DELETES THAT LINE
0030 THIRD LINE
LINE DELETED
30@                         THERE IS NO LINE NUMBER 30 NOW
20 LINE CHANGED@            REPLACES EXISTING LINE NUMBER 20
L@
0010 FIRST LINE             LISTING OF THE DATA AFTER
0015 LINE ADDED
0020 LINE CHANGED
0040 FOURTH LINE
END
```

A—ADD LINE(S) OF DATA IN LINE NUMBER MODE

Editor prints READY to acknowledge command and indicate readiness to accept and store new lines of data. The editor prints a line number that will be prefixed to the user's data. This line number is the next multiple of ten above the last line number stored, thus allowing new lines to be added to existing data.

After the user types a line of data and the RETURN LF sequence, the editor responds with the next line number. The user can cause the editor to exit the add mode by typing a NULL line (no character before the RETURN LF sequence). The editor responds with READY to indicate it is ready to accept any command.

EXAMPLE 2. ADDING NEW LINES OF DATA (LINE NUMBER MODE)

```
L@                          LISTING THE DATA SHOWS THAT NONE IS SAVED
END
A@
READY
0010 FIRST LINE@
0020 SECOND LINE@
0030 THIRD LINE@
0040 @                      NULL LINE TERMINATES THE ADD MODE
READY
L@                          LISTING THE DATA
0010 FIRST LINE
0020 SECOND LINE
0030 THIRD LINE
END
A@
READY
0040 FOURTH LINE@           APPENDED TO SAVED DATA
0050 @
READY
L@                          LISTING THE DATA AFTER
0010 FIRST LINE
0020 SECOND LINE
0030 THIRD LINE
0040 FOURTH LINE
END
```

A – ADD LINE(S) OF DATA IN LINE NUMBERS OMITTED MODE

Editor prints READY to acknowledge command and indicate readiness to accept and store new lines of data. If the ADD command follows the ↑O ↑N command, the new lines are appended to the existing data; otherwise, the new lines are added after the last line printed. The user can cause the editor to exit the Add mode by typing a NULL line. The editor responds with READY to indicate it is ready to accept any command.

EXAMPLE 3. ADDING NEW LINES OF DATA (NO LINE NUMBERS MODE)

```
↑O↑N
NO DATA                          NO DATA SAVED WHEN EDITOR TURNED ON
READY
A@
READY
FIRST LINE@
SECOND LINE@
THIRD LINE@
@                                NULL LINE TERMINATES THE ADD MODE
READY
L@                               LISTING THE DATA
FIRST LINE
SECOND LINE
THIRD LINE
END
Z@                               TURNING THE EDITOR OFF
EDIT OFF
↑O↑N
DATA SAVED TO SEND
READY
A@                               ADD AFTER ↑O↑N APPENDS DATA
READY
FOURTH LINE@
@
READY
F/SECOND/@                       FINDS THE STRING "SECOND" IN THE DATA
SECOND LINE
A@                               DATA ADDED NOW WILL BE ADDED AFTER "SECOND LINE"
READY
THIS LINE WAS INSERTED@
SO WAS THIS LINE@
@
READY
L@                              LISTING THE DATA AFTER
FIRST LINE
SECOND LINE
THIS LINE WAS INSERTED
SO WAS THIS LINE
THIRD LINE
FOURTH LINE
END
```

B – BEGINNING LINE OF DATA

The editor responds by printing the first line of data. If no data exists in the transmit storage area, the editor prints END.

EXAMPLE 4. PRINTING FIRST LINE

```
P@
0010 FIRST LINE
```

C – CHANGE A STRING OF DATA

The user specifies the old and new strings by typing C/OLD/NEW/@. The first character after the C and at the end of both strings is the delimiter. In this instance, a slash (/) is the delimiter, but any character may be used, including a space. The old string may be from 1 to 16 characters long, and the new string may be from 0 to 16 characters long. Both strings are remembered by the editor until replaced by another pair in a change command or until Power Off.

The editor starts searching for the old string in the current line (last line printed or typed). If the old string is not found from the current line to the end, the editor prints END. If the old string is found, it is replaced by the new string and the changed line is printed. The user may type C and RETURN LF to repeat the command, or RETURN LF only if the last command was Change. The editor will then begin searching for the next occurrence of the old string.

EXAMPLE 5. CHANGING SUCCESSIVE LINES OF DATA BY REPEATING THE CHANGE COMMAND

```
L@                          LISTING THE DATA BEFORE
0010 FIRST LINE
0020 SECOND LINE
0030 THIRD LINE
END
C LINE SENTENCE@            MISSING THIRD DELIMITER
ERROR
C /LINE/SENTENCE/@          SPACE AFTER C TREATED AS DELIMITER
ERROR
C.LINE.SENTENCE.@           VALID COMMAND
0030 THIRD SENTENCE
B@                          MAKE THE BEGINNING LINE THE CURRENT LINE
0010 FIRST LINE
C@                          REPEAT THE CHANGE COMMAND WITH THE PREVIOUS STRINGS
0010 FIRST SENTENCE
@                           REPEAT THE CHANGE COMMAND AGAIN
0020 SECOND SENTENCE
@                           AND AGAIN
END
L@                          LISTING THE DATA AFTER
0010 FIRST SENTENCE
0020 SECOND SENTENCE
0030 THIRD SENTENCE
END
```

EXAMPLE 6. CHANGING ONE LINE OF DATA

THE OLD STRING MUST BE UNIQUE:

```
L120@
0120 NOW IS THE TIME FOR ALL GOOD MEN TO COME TO THE AID OF THE PARTY
C THE THEIR @
0120 NOW IS THEIR TIME FOR ALL GOOD MEN TO COME TO THE AID OF THE PARTY
C/IR//@
0120 NOW IS THE TIME FOR ALL GOOD MEN TO COME TO THE AID OF THE PARTY
C/E P/EIR P/@
0120 NOW IS THE TIME FOR ALL GOOD MEN TO COME TO THE AID OF THEIR PARTY
```

If the new string is longer than 16 characters, the user can proceed in a manner similar to that shown in the following example:

```
L230@
0230 NOW IS THE TIME TO COME TO THE AID OF THE PARTY
C/TIME/TIME FOR ALL GOOD MEN/@
ERROR
C/TIME/TIME FOR ALL Z/@
0230 NOW IS THE TIME FOR ALL Z TO COME TO THE AID OF THE PARTY
C/Z/GOOD MEN/@
0230 NOW IS THE TIME FOR ALL GOOD MEN TO COME TO THE AID OF THE PARTY
```

EXAMPLE 7. CHANGING NON-SUCCESSIVE LINES OF DATA BY REPEATING THE CHANGE COMMAND

Note that the old and new change strings are independent of the Find string.

```
L@
0010 CUSTOMER          QTY    ITEM      UNIT PRICE
0100 JONES              5     BOX            13.95
0110 JONES              2     CRATE          13.95
0120 JONES              1     BARREL         25.95
0200 SMITH              3     BOX            13.95
0210 SMITH              1     DRUM           19.95
0400 WILLIAMS           6     CRATE          13.95
0410 WILLIAMS           1     DRUM           19.95
0420 WILLIAMS           1     BARREL         25.95
END
F 13.95 @
0100 JONES              5     BOX            13.95
@
0110 JONES              2     CRATE          13.95
C 3 5 @
0110 JONES              2     CRATE          15.95
F@
0200 SMITH              3     BOX            13.95
@
0400 WILLIAMS           6     CRATE          13.95
C@
0400 WILLIAMS           6     CRATE          15.95
F@
END
```

D – DELETING STORED DATA

The editor responds to this command by deleting the current line (last line printed or typed) from storage and printing the message LINE DELETED. Or, as shown in the example below, any line within a data listing can be specified by the user and deleted. Note that each line of data to be deleted must first be printed.

EXAMPLE 8. DELETING ONE LINE OF DATA

```
L@                              LISTING THE DATA BEFORE
0010 FIRST LINE
0020 SECOND LINE
0030 THIRD LINE
0040 FOURTH LINE
0050 FIFTH LINE
END
L20@
0020 SECOND LINE
D@
LINE DELETED
L@                              LISTING THE DATA AFTER
0010 FIRST LINE
0030 THIRD LINE
0040 FOURTH LINE
0050 FIFTH LINE
END
```

Also, in the Line Numbered mode, the user may delete any line without listing the data by simply typing the line number and RETURN LF. The line number and data are then located, printed, and deleted from storage, and the LINE DELETED message is printed. To protect against the loss of unknown data, the D command alternately prints the next line of data or deletes that line for each REPEAT, RETURN LF.

EXAMPLE 9. DELETING SUCCESSIVE LINES OF DATA

```
B@
0010 FIRST LINE
N@
0030 THIRD LINE
D@
LINE DELETED
@
0040 FOURTH LINE          COMMAND REPEATS BY EXECUTING
@                         NEXT COMMANDS BETWEEN DELETE COMMANDS
LINE DELETED
L@                        LISTING THE DATA AFTER
0010 FIRST LINE
0050 FIFTH LINE
END
```

E – ENDING LINE

The editor responds by printing the last line of data. If no data exists in the transmit area, the editor prints END.

EXAMPLE 10. PRINTING ENDING LINE

```
L@                        LISTING THE DATA
0010 FIRST LINE
0020 SECOND LINE
0030 THIRD LINE
END
F@
0030 THIRD LINE
```

F – FIND A STRING OF DATA

The user specifies the string to be found by typing F/FIND/@. The first character after the F and at the end of the string is the delimiter. In this instance, a slash (/) is the delimiter, but any character may be used, including a space. The string may be from 1 to 16 characters long, and is remembered by the editor until replaced by another in a Find command or until Power Off.

The editor starts searching for the string at the beginning of the data. If found, the line containing the string is printed; if not, the editor prints END. The user may type F and RETURN LF to repeat the command, or RETURN LF only if the last command was Find. The editor will begin searching in the next line for the next occurrence of the string. Refer to the last example under the Change command.

EXAMPLE 11. FINDING SUCCESSIVE LINES OF DATA

```
L@                              LISTING THE DATA
0010 FIRST LINE
0020 SECOND LINE
0030 THIRD LINE
0040 FOURTH LINE
0050 FIFTH LINE
END
F R@                            MISSING FINAL DELIMITER
ERROR
F R @
0010 FIRST LINE
F@                              REPEAT COMMAND
0030 THIRD LINE
@                               AND AGAIN
0040 FOURTH LINE
@
END
```

L — LIST LINE(S) OF DATA

The editor responds to this command by listing all transmit data lines.

EXAMPLE 12. LISTING LINES OF DATA

```
L@
0010 FIRST LINE
0020 SECOND LINE
0030 THIRD LINE
0040 FOURTH LINE
0050 FIFTH LINE
END
```

If the command includes a line number, that line is located and listed.

```
L20@
0020 SECOND LINE
```

If the line number does not exist, the editor prints END.

```
L33@
END
```

If the user specifies two line numbers, the editor lists all lines within the inclusive range of line numbers.

```
L15-40@
0020 SECOND LINE
0030 THIRD LINE
0040 FOURTH LINE
```

If the first character after the L command is ↑ (up-arrow or caret on some models), all control codes are transformed to ↑ and a printable character. Column 0 of the ASCII chart is transformed to Column 4, and Column 1 is transformed to Column 5 (e.g., ETX = ↑C and DC3 = ↑S). L↑, L↑20, and L↑15-40 are valid commands.

A List command with ↑ sets the mode to transform control codes. This applies to all lines printed by any command until a List command without the ↑ resets the mode. The ↑ and line number are not saved for repeat if the user types RETURN LF. Repeating any List command will list all data lines without transforming control codes.

Striking the DEL (Delete) key will terminate a list at the end of the current line.

EXAMPLE 13. LISTING LINES OF DATA AND PRINT CONTROL CODES WITHIN THE DATA

Using ↑ inhibits the control code functions, as they are transformed to printable characters.

```
L↑@
0010 ESC C AND ESC N CHANGE PRINT SIZE ON THE TN200
0020 ↑[C THIS LINE STARTS WITH AN ESC C
0030 ↑[N THIS LINE STARTS WITH AN ESC N
0040 THIS LINE ENDS WITH AN ESC C ↑[C
0050 THIS LINE ENDS WITH AN ESC N ↑[N
0060 THE TN200 RESPONDS TO A SIZE CHANGE IN COLUMN 1
0070 ELSE THE CHANGE AFFECTS THE NEXT LINE
0080 ↑[C
0090 THIS LINE IS PRINTED IN COMPRESSED SIZE
0100 ↑[N
0110 THIS LINE IS PRINTED IN NORMAL SIZE
END
```

In Line Number mode, the control codes in the data are never in Column 1.

```
L@
0010 ESC C AND ESC N CHANGE PRINT SIZE ON THE TN200
0020 THIS LINE STARTS WITH AN ESC C
0030 THIS LINE STARTS WITH AN ESC N
0040 THIS LINE ENDS WITH AN ESC C
0050 THIS LINE ENDS WITH AN ESC N
0060 THE TN200 RESPONDS TO A SIZE CHANGE IN COLUMN 1
0070 ELSE THE CHANGE AFFECTS THE NEXT LINE
0080
0090 THIS LINE IS PRINTED IN COMPRESSED SIZE
0100
0110 THIS LINE IS PRINTED IN NORMAL SIZE
END
```

In Line Numbers Omitted mode, the results are different.

```
O@                          OMIT LINE NUMBERS
READY
L@
ESC C AND ESC N CHANGE PRINT SIZE ON THE TN200
THIS LINE STARTS WITH AN ESC C
THIS LINE STARTS WITH AN ESC N
THIS LINE ENDS WITH AN ESC C
THIS LINE ENDS WITH AN ESC N
THE TN200 RESPONDS TO A SIZE CHANGE IN COLUMN 1
ELSE THE CHANGE AFFECTS THE NEXT LINE

THIS LINE IS PRINTED IN COMPRESSED SIZE

THIS LINE IS PRINTED IN NORMAL SIZE
END
```

M – MODE OPTIONS

NOTE

The codes DC1, DC2, DC3 and DC4 referred to in the following text cause the following actions:

DC1 – Reader On
DC2 – Punch On
DC3 – Reader Off
DC4 – Punch Off

The editor responds to this command by printing six mode options, one at a time, showing their current status and waiting after each option for a response from the user. If the current status of the option is the desired status, the user need type only RETURN LF to indicate no change. If the current status is not satisfactory, the user may type Y or N to set the option in the desired mode.

Any response other than RETURN LF, Y, or N will cause the editor to repeat the option and hold for an approximate response. The default value with POWER ON is YES to all mode options. A strapping option was added after REV 3 to allow default value with power ON to be NO to all mode options. The six operating mode options are discussed below.

TRANSMIT ON – YES means that if the editor is off and a DC1 is received from the proper source (see RECEIVED DC# and KEYBOARD DC# options below), the editor will transmit data over the lines until the end of data is reached; a DC3 is the next character; a DC3 or BREAK (Interrupt) is received from the line; or the user strikes the Delete key. No status inhibits the transmission of data to an on-line receiver.

RECEIVE ON – YES means that if the editor is off and a DC2 is received from the proper source (see RECEIVED DC# and KEYBOARD DC# options below), the editor will store the data received from the lines until there is no more storage space available or a DC4 is received. If the last line received is not terminated with RETURN LF or DC4, that partial line is not stored. NO status inhibits the reception and storage of on-line received data.

RECEIVED DC# – YES means that the editor, if off, will respond to a DC1, DC2, DC3, or DC4 received from the line. No status means that the editor will ignore a DC1, DC2, DC3, or DC4 received from the line. If SEND BREAK option below is YES, the editor will transmit a BREAK (Interrupt), but will not store data if a DC2 is received from the line.

KEYBOARD DC# – YES means that the editor, if off, will respond to a user-typed DC1 (CTL Q), DC2 (CTL R), DC3 (CTL S), and DC4 (CTL T). With NO status, the editor ignores user-typed codes.

TRANSMIT DC3 – YES means that if the editor detects a DC3 in the data it is transmitting, the DC3 will be transmitted and the editor will then stop transmitting until another DC1 is recognized. NO status means that the editor stops without transmitting the DC3 code, and that data transmission remains inhibited until a DC1 is recognized.

SEND BREAK – YES means that the editor will transmit a BREAK (Interrupt) if it cannot receive data for any of the following reasons: There is not enough storage space available for the last line received; there is no storage space available when a DC2 is received; the RECEIVE ON option is NO and a DC2 is received; or the RECEIVED DC# option is NO and a DC2 is received. NO status inhibits transmission of a BREAK by the editor.

CONTINUE AFTER CR LF – YES means that transmission continues until DC3, INTERRUPT, or end of data is encountered. NO means that transmission stops after each line until another DC1 is detected.

EXAMPLE 14. SETTING MODE OPTIONS

```
M@
TRANSMIT ON  - Y ? @
RECEIVE ON   - Y ? @
RECEIVED DC# - Y ? N@
KEYBOARD DC# - Y ? @
TRANSMIT DC3 - Y ? @
SEND BREAK   - Y ? @
CONT.AFTER CR- Y ? @
```

In the above example, changing the RECEIVED DC# option to NO status is similar to locking a tape so that timesharing will not cause the data to be transmitted prematurely. However, the user-typed DC1 will be transmitted unless the FDX/MDX/LOCAL switch is in LOCAL.

N – NEXT LINE OF DATA

The editor responds to this command by printing the next line of data. If no more data exists, the editor prints END. If the user wishes to step through the data one line at a time, this command may be repeated by typing RETURN LF.

EXAMPLE 15. PRINTING NEXT LINE OF DATA

```
_@
0010 FIRST LINE
0020 SECOND LINE
0030 THIRD LINE
0040 FOURTH LINE
END
B@                          BEGINNING LINE
0010 FIRST LINE
N@
0020 SECOND LINE
@
0030 THIRD LINE
@
0040 FOURTH LINE
@
END
```

O – OMIT LINE NUMBERS

The editor responds to this command by printing READY to indicate that line numbers have been erased and the editor is ready for another command.

EXAMPLE 16. LISTING DATA WITHOUT LINE NUMBERS

```
L@                          LISTING THE DATA BEFORE
0010 FIRST LINE
0020 SECOND LINE
0030 THIRD LINE
END
O@
READY
L@                          LISTING THE DATA AFTER
FIRST LINE
SECOND LINE
THIRD LINE
END
```

Because received data does not have line numbers (by definition), the editor automatically sets the Omit Line Numbers mode when the received data is swapped to the Transmit area. Since line numbers can be quickly omitted or resequenced, the user should consider changing modes when one mode will perform a task more easily than another.

EXAMPLE 17. ADDING A LINE BEFORE THE BEGINNING LINE WITHOUT LINE NUMBERS

```
EXAMPLE OF ADDING A LINE BEFORE THE BEGINNING LINE WITHOUT LINE NUMBERS:

B@                          BEGINNING LINE
FIRST LINE
D@                          DELETE "FIRST LINE"
LINE DELETED
A@                          ADD MODE FOR ADDING NEW DATA LINES
READY
EXTRA LINE@
FIRST LINE@                 NOW "FIRST LINE" IS RE-ADDED AFTER THE "EXTRA LINE"
@
READY

COULD BE DONE MORE EASILY BY:

R@                          RESEQUENCE THE DATA WITH LINE NUMBERS
READY                       STARTING WITH LINE NUMBER 0010
5 EXTRA LINE@               5 < 10 SO THIS LINE GOES BEFORE 0010
O@                          NOW OMIT THE LINE NUMBERS
READY
```

P – PREVIOUS LINE OF DATA

The editor responds to this command by printing the previous line of data. If no previous data exists, the editor prints BEGIN. If the user wishes to step back through the data one line at a time, this command may be repeated by typing RETURN LF.

EXAMPLE 18. PRINTING PREVIOUS LINE OF DATA

```
L@
0010 FIRST LINE
0020 SECOND LINE
0030 THIRD LINE
0040 FOURTH LINE
END
P@
0030 THIRD LINE
@
0020 SECOND LINE
@
0010 FIRST LINE
@
BEGIN
```

R – RESEQUENCE LINE NUMBERS

The editor responds to this command by printing READY to indicate that line numbers have been resequenced from 0010 in multiples of 10.

EXAMPLE 19. RESEQUENCING LINE NUMBERS

```
L@                          LISTING THE DATA BEFORE
0010 FIRST LINE
0020 SECOND LINE
0023 ADDED LINE
0026 ALSO ADDED
0030 THIRD LINE
END
R@
READY
L@
0010 FIRST LINE
0020 SECOND LINE
0030 ADDED LINE
0040 ALSO ADDED
0050 THIRD LINE
END
O@                          OMIT LINE NUMBERS
READY
L@
FIRST LINE
SECOND LINE
ADDED LINE
ALSO ADDED
THIRD LINE
END
R@
READY
L@
0010 FIRST LINE
0020 SECOND LINE
0030 ADDED LINE
0040 ALSO ADDED
0050 THIRD LINE
END
```

S – STORAGE SPACE AVAILABLE

The editor responds to this command by calculating the amount of storage space available, truncating (rounding down) the amount to a multiple of 1/4K, and printing the value, e.g., 2 1/4K. The letter K represents 1,024 character spaces; thus, 1/4K is equal to 256 character spaces. Since the editor uses an extra two spaces per line, it is reasonable for the user to think of K as representative of 1,000 character spaces.

The bell is sounded if less than 256 spaces are available when a line is added or lengthened (by change).

The editor prints OVERFLOW when a line being added or increased by a change will not fit in the available space. This new line is also not saved. Although the S command is for the user's convenience, the user is not required to check the storage space available.

T – TAPE INPUT DATA

On units with the optional Magnetic Tape Accessory, it is possible to create a file using the editor commands, and then save it in permanent transportable tape cassette form with the List command (with line numbers omitted).

EXAMPLE 20. TRANSFERRING DATA FROM EBA TO TAPE CASSETTE

```
L@
0010 FIRST LINE
0020 SECOND LINE
0030 THIRD LINE
END
O@                    OMIT LINE NUMBERS BEFORE WRITING TAPE
READY
L
          ENABLE TAPE WRITE ON MTA
 @
FIRST LINE
SECOND LINE
THIRD LINE
END                   NOTE: END WAS WRITTEN ON TAPE
          STOP TAPE (AND REMOVE NORMALLY)
```

Similarly, any tape cassette can be input to the Edit Buffer with the tape command. This command sets line numbers omitted mode and then functions like the ADD command except DELETE codes and NULL lines are ignored. Normally the buffer would be cleared using the X command unless it is desired to add the tape data to the existing file. The command terminates 3 seconds after the last character is read from the tape. (NOTE: If a T command is executed accidentally, type RETURN LF and wait 3 seconds.)

EXAMPLE 21. TRANSFERRING DATA FROM TAPE CASSETTE TO EBA

```
R@                    THIS EXAMPLE INSERTS THE TAPE DATA
READY
L20@
0020 SECOND LINE
T@
READY
          START TAPE READ
FIRST LINE
SECOND LINE
THIRD LINE
END
READY                 READY CAME 3 SECONDS AFTER END OF DATA
D@                    TO ERASE "END"
LINE DELETED
L@
FIRST LINE
SECOND LINE
FIRST LINE
SECOND LINE
THIRD LINE
THIRD LINE
END
```

X – ERASE (CLEAR) OR EXCHANGE DATA

If transmit or received data exists, the editor asks the applicable question: ERASE TRANSMIT DATA? or ERASE RECEIVED DATA? If the user answers Y (YES), the data is erased. Should the user answer N (NO), the data is saved. If data is saved, the editor then asks SWAP? If the user answers Y, the data in the transmit area is exchanged (swapped) with the data in the receive area and the Line Numbers Omitted mode is set. The data is still saved in the same areas should the user answer N.

The swap function gives the user the capability to create either two transmit files, two receive files, or one of each. When a DC1 is recognized, the data in the transmit area is transmitted; received data is appended to the data in the receive area.

If the user's answer to the last question asked was Y, the editor prints DONE to indicate the task is completed and the editor is ready for another command. If the user's answer to the last question was N, or there is no saved data, the editor prints READY to indicate the task was not done and the editor is ready for another command.

EXAMPLE 22. TRANSFERRING DATA BETWEEN STORAGE AREAS

```
L@
0010 FIRST LINE
0020 SECOND LINE
0030 THIRD LINE
END
X@
ERASE TRANSMIT DATA? N@
SWAP? Y@
DONE
L@
END                          TRANSMIT AREA EMPTY NOW
A@
READY
NOW IS THE TIME@             ADD DATA
FOR ALL GOOD MEN@
TO COME TO THE AID@
OF THE PARTY@
@
READY
X@
ERASE TRANSMIT DATA? N@
ERASE RECEIVE DATA? N@
SWAP? Y@
DONE
L@
FIRST LINE                   SWAP OMITS LINE NUMBERS
SECOND LINE
THIRD LINE
END
```

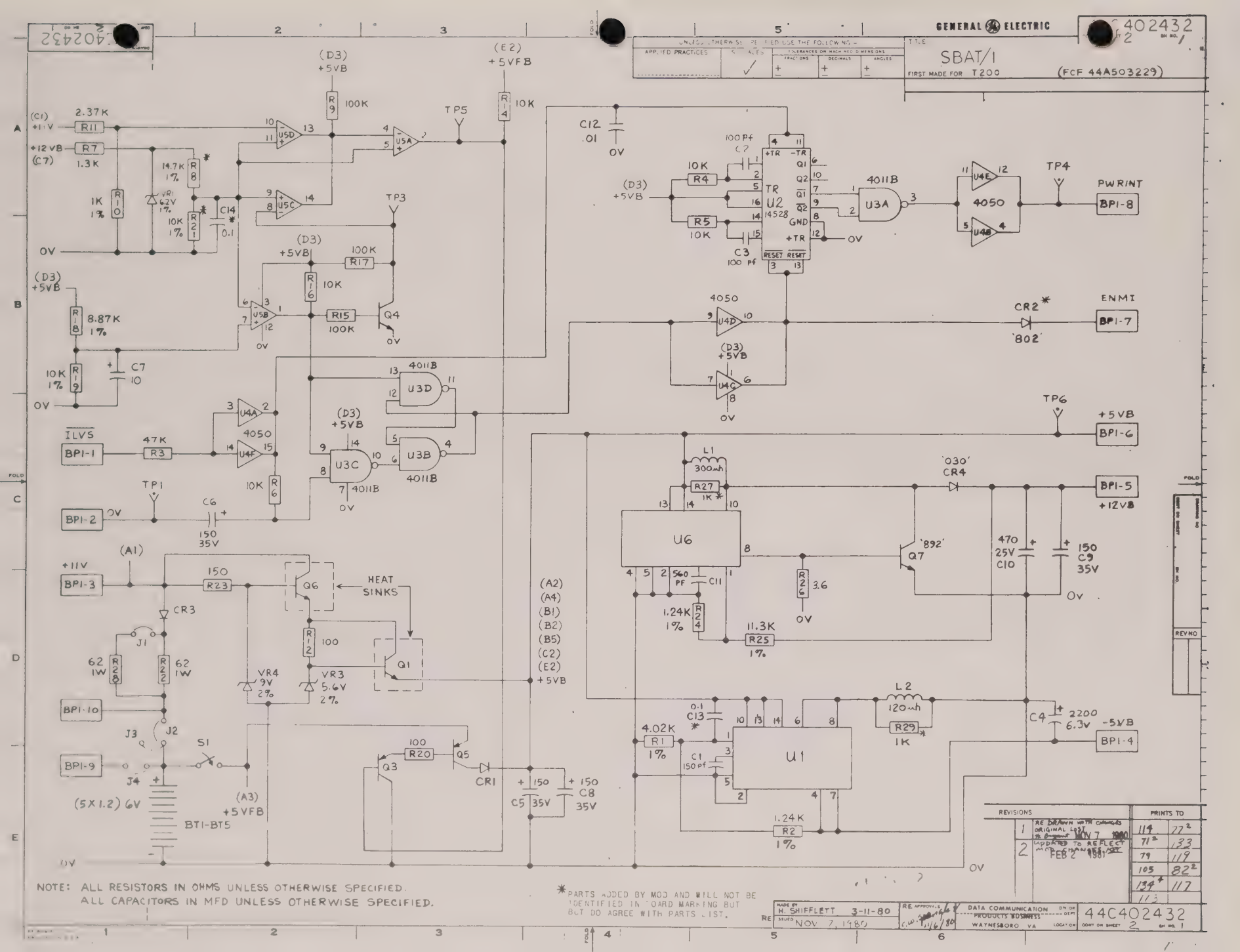
Z – EDITOR OFF (LAST EDIT COMMAND)

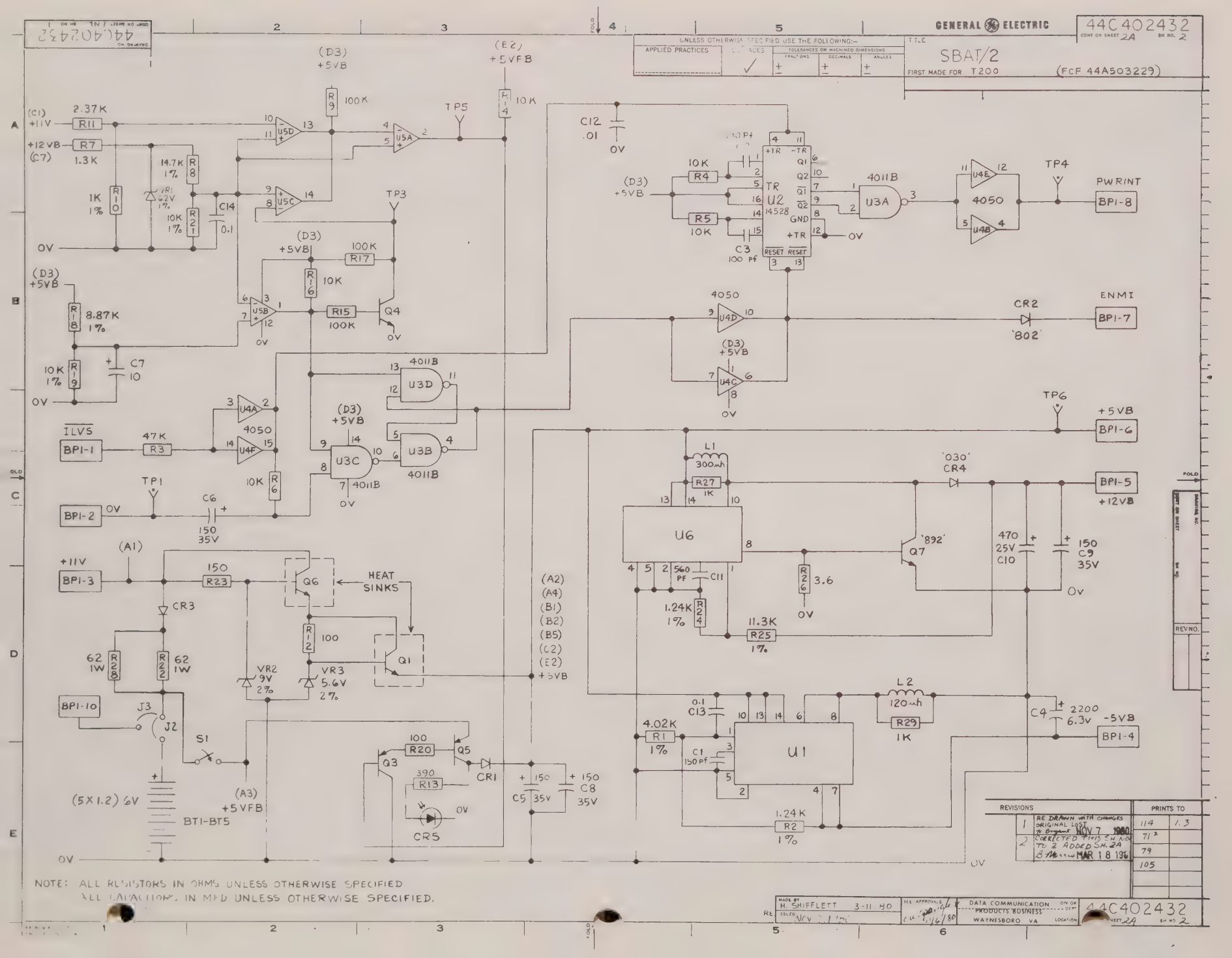
The editor responds by printing EDIT OFF. When the editor is on, data cannot be transmitted or received. When the editor is off, transmit and receive may occur, as responses to DC1, DC2, DC3, DC4, and ESC DLE are conditioned by the Mode options.

The Z command without a line number sets the transmit data pointer at the beginning and an ESC DLE rewinds the pointer to the beginning. With a line number, the Z command sets the transmit data pointer at that line and an ESC DLE rewinds the pointer to that same line. If the line number does not exist, the editor prints ERROR and stays on. In the Example below, the codes shown in brackets would not appear on the printout.

EXAMPLE 23. TURNING EDITOR OFF

```
L@
0010 FIRST LINE
0020 SECOND LINE
0030 THIRD LINE
END
Z@
EDIT OFF
[DC1]                    RECEIVED
FIRST LINE
SECOND LINE
THIRD LINE
[ESC DLE]                ESC CTL P TYPED
[DC1]
FIRST LINE
SECOND LINE
THIRD LINE
[↑O↑N]                   CTL O CTL N TYPED
DATA SENT
READY
Z25@
ERROR
Z30@
EDIT OFF
[DC1]
THIRD LINE
[ESC DLE]
[DC1]
THIRD LINE
```


GENERAL ELECTRIC
44C402432
SBAT/1
FIRST MADE FOR T200
(FCF 44A503229)
(D3) +5VB
(E2) +5VFB
TP5
TP3
TP4
TP6
TP1
R9 100K
R14 10K
C12 .01
100 pf C2
R4 10K
R5 10K
C3 100 pf
U2 14528
4011B U3A
4050 U4E
4050 U4B
PWRINT
BPI-8
(C1) +11V
R11 2.37K
+12 VB (C7)
R7 1.3K
R10 1K 1%
VR1 6.2V 1%
R8 14.7K 1%
R21 10K 1%
C14 0.1
U5D
U5A
U5C
U5B
R16 10K
R17 100K
R15 100K
Q4
R18 8.87K 1%
R19 10K 1%
C7 10
4050 U4D
U4C
CR2 '802'
ENMI
BPI-7
4011B U3D
U3C
U3B
U4A
U4F
ILVS
BPI-1
R3 47K
R6 10K
BPI-2
C6 150 35V
L1 300uh
R27 1K *
U6
'030' CR4
'892' Q7
BPI-5
+12VB
470 25V C10
150 C9 35V
R26 3.6
1.24K 1% R24
C11 560 PF
11.3K R25 1%
+5VB
BPI-6
(A1)
+11V
BPI-3
R23 150
Q6
HEAT SINKS
CR3
J1
62 1W R20
62 1W R22
R12 100
Q1
VR4 9V 2%
VR3 5.6V 2%
BPI-10
J3
J2
S1
BPI-9
J4
(5X1.2) 6V
BT1-BT5
(A3) +5VFB
(A2) (A4) (B1) (B2) (B5) (C2) (E2) +5VB
R20 100
Q3
Q5
CR1
C5 150 35V
C8 150 35V
L2 120uh
R29 1K
C13 0.1 *
4.02K R1 1%
C1 150 pf
U1
1.24K R2 1%
C4 2200 6.3V
-5VB
BPI-4
0V
REVISIONS
PRINTS TO
NOTE: ALL RESISTORS IN OHMS UNLESS OTHERWISE SPECIFIED.
ALL CAPACITORS IN MFD UNLESS OTHERWISE SPECIFIED.
* PARTS ADDED BY MOD AND WILL NOT BE IDENTIFIED IN BOARD MARKING BUT BUT DO AGREE WITH PARTS LIST.
DRAWN H. SHIFFLETT 3-11-80
ISSUED NOV 7, 1980
DATA COMMUNICATION PRODUCTS DIVISION
WAYNESBORO VA
44C402432


GENERAL ELECTRIC
44C402432
SBAT/2
FIRST MADE FOR T200
(FCF 44A503229)
(D3) +5VB
(E2) +5VFB
(C1) +11V
+12VB (C7)
2.37K R11
1.3K R7
1K 1% R10
14.7K 1% R8
10K 1% R21
VR1 6.2V 1%
C14 0.1
OV
100K R9
10K R14
TP5
U5D U5A U5C
TP3
100K R17
10K R16
R15 100K
Q4
8.87K 1% R18
10K 1% R19
C7 10
4011B U3D U3B U3C
U4A U4F 4050
ILVS BPI-1
47K R3
10K R6
TP1
BPI-2
C6 150 35V
(A1)
+11V BPI-3
150 R23
Q6
HEAT SINKS
CR3
62 1W R28
62 1W R22
VR2 9V 2%
VR3 5.6V 2%
R12 100
Q1
BPI-10
J3 J2 S1
(5X1.2) 6V
BT1-BT5
(A3) +5VFB
(A2) (A4) (B1) (B2) (B5) (C2) (E2) +5VB
100 R20
Q5 Q3
390 R13
CR1
CR5
C5 150 35V
C8 150 35V
C12 .01
U2 14528
10K R4
10K R5
C3 100 pF
U3A 4011B
U4E U4B 4050
TP4
PWRINT BPI-8
U4D U4C 4050
CR2 '802'
ENMI BPI-7
TP6
+5VB BPI-6
L1 300uh
R27 1K
U6
'030' CR4
BPI-5 +12VB
'892' Q7
470 25V C10
150 C9 35V
560 PF C11
1.24K 1% R24
11.3K 1% R25
3.6 R26
L2 120uh R29
0.1 C13
4.02K 1% R1
C1 150 pF
U1
1.24K R2 1%
C4 2200 6.3V -5VB BPI-4
NOTE: ALL RESISTORS IN OHMS UNLESS OTHERWISE SPECIFIED
ALL CAPACITORS IN MFD UNLESS OTHERWISE SPECIFIED.
REVISIONS
PRINTS TO
DATA COMMUNICATION PRODUCTS BUSINESS
WAYNESBORO VA
44C402432

GENERAL ELECTRIC

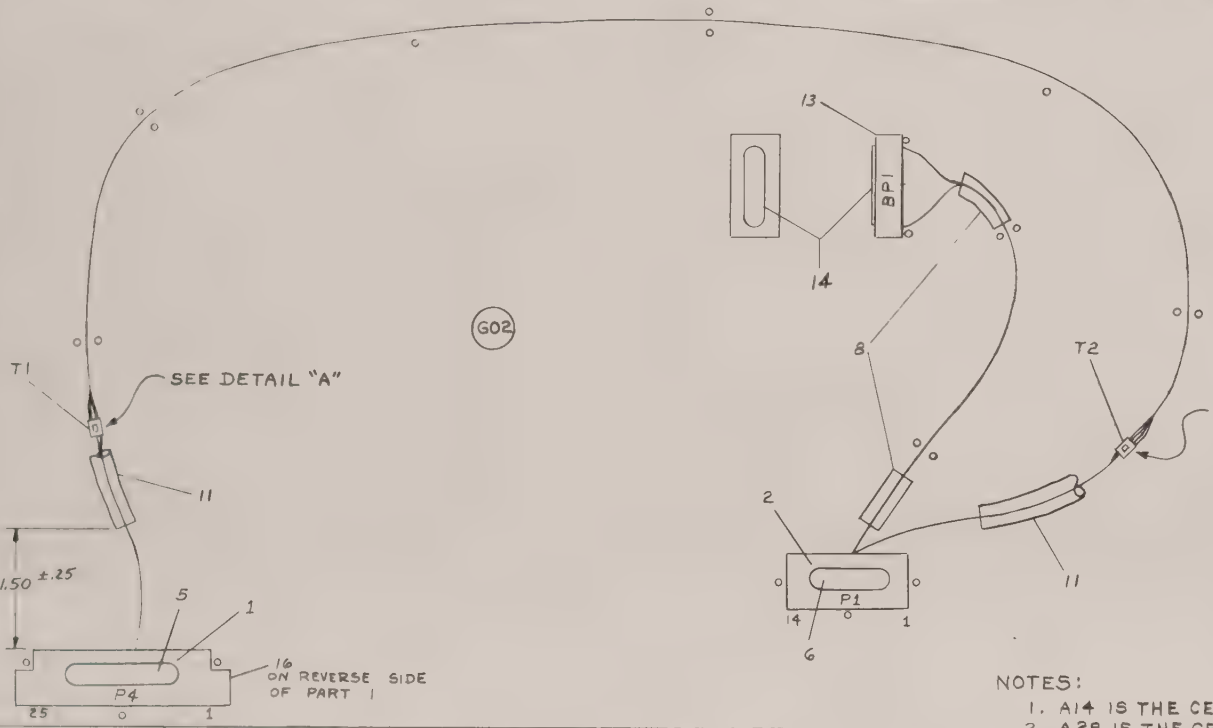
44C415082 SHEET 3 SH NO. 2

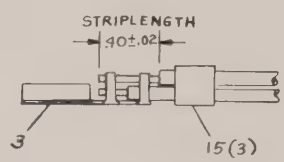
UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING —
APPLIED PRACTICES | SURFACES ✓ | TOLERANCES ON MACHINED DIMENSIONS: FRACTIONS ± | DECIMALS ± | ANGLES ±

TITLE
CABLE ASM (SBAT CONNECTION)
FIRST MADE FOR EBAT200

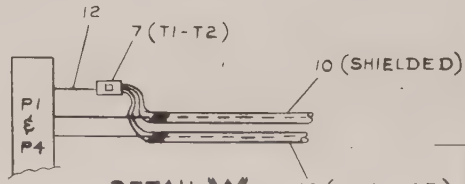
— P.L. ISSUED —

NAILS - 29





DETAIL "B"



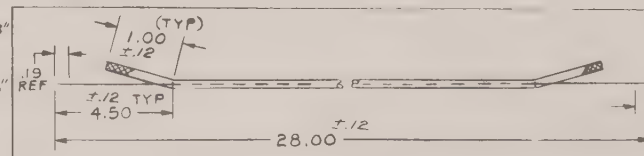
DETAIL "A"

NOTES:
1. A14 IS THE CENTER WIRE IN A31.
2. A28 IS THE CENTER WIRE IN A29.
3. A08, A12, A25 DOUBLE-CRIMPED WIRES IN P1 TERMINAL.
4. STRIP A08, A12 & A25 JUMPERS (6.00), .40±.02 ON P1 END.
5. SHRINK SLEEVING (PT-15) ON DOUBLE CRIMPED WIRE AS CLOSE TO CONNECTOR (PT-2) AS POSSIBLE AFTER TERMINAL IS INSERTED IN CONNECTORS.

MARKING	TO: WIRE P.L. NO.	TO: ±.12 LENGTH	TO: ±.03 STRIP	TO: TERM P.L. NO.	TO: ROUTING	FROM: ±.03 STRIP	FROM: TERM P.L. NO.	FROM: ROUTING	FROM: SIGNAL	TO: ±.03 STRIP	TO: TERM P.L. NO.	TO: ROUTING	±.02 LENGTH
A01	9	28.00	.19	3	P4-19	.19	3	P1-1	TTB				
A02	9	28.00	.19	3	P4-14	.19	3	P1-15	SYNC				
A03	9	28.00	.19	3	P4-16	.19	3	P1-2	BDS				
A04					N.C.			P1-16	+15V				
A05	9	28.00	.19	3	P4-5	.19	3	P1-3	ABPY				
A06	9	28.00	.19	3	P4-8	.19	3	P1-17	WAIT				
A07	9	28.00	.19	3	P4-13	.19	3	P1-4	ABRS				
A08	9	28.00	.19	3	P4-20	.19	3	P1-18	-VS			BP1-1	6.00
A09	9	28.00	.19	3	P4-7	.19	3	P-5	DTBK				
A10	9	28.00	.19	3	P4-12	.19	3	P1-19	TDA				
A11	9	28.00	.19	3	P4-10	.19	3	P1-6	LOCAL				
A12	9	28.00	.19	3	P4-2	.19	3	P1-20	+QV			BP1-3	6.00
A13					N.C.	.19	3	P1-7	PWRINT			BP1-8	6.00
A14	10	28.00	.19	3	P4-24	.19	3	P1-21	PH2*				
A15	9	28.00	.19	3	P4-25	.19	3	P1-8	+5V				
A16					N.C.	.19	3	P1-22	+NM1			BP1-7	6.00
A17					N.C.	.19	3	P1-9	+12VB			BP1-5	6.00
A18					N.C.	.19	3	P1-23	+5VB			BP1-6	6.00
A19	3	28.00	.19	3	P4-17	.19	3	P-10	SDO				
A20	9	28.00	.19	3	P4-4	.19	3	P1-24	+12V				
A21					N.C.			P-	-8V				
A22	3	28.00	.19	3	P4-11	.19	3	P-25	MCI				
A23	9				N.C.	.19	3	P-12	-5VB			BP1-4	6.00
A24													
A25	9	28.00	.19	3	P4-23	.19	3	P1-13	QV			BP1-2	6.00
A26				4	P4-18		4	P1-27	KEY				
A27					N.C.			P1-14	-7V				
A28	2	28.00	.19	3	P4-26	.19	3	P1-28	PH1*				
A29	1	28.00	ALREADY STRIPPED	7	T2	ALREADY STRIPPED .37	7	T1	SHIELD*				
A30	2	4	9	3	P1-26			T2	DRAIN*				
A31	2	28.00	ALREADY STRIPPED	7	T2	ALREADY STRIPPED	7	T2	SHIELD*				
A32	2	4	9	3	P1-22	.37		T1	DRAIN*				

* SHIELDED WIRE

{SEE DETAIL "B" & NOTES 3, 4 & 5} — A08
{SEE DETAIL "B" & NOTES 3, 4 & 5} — A12
{SEE DETAIL "B" & NOTES 3, 4 & 5} — A25



(020) MAKE FROM 44A418687-001 SHIELDED WIRE (USE AT A14, A28, A29 & A31)

REVISIONS		PRINTS TO
1	180-3 Stat MAR 04 1980	79
2	80-547 MAR 26 1980	1042
3	80-1421 OCT 15 1980	13
4	ADDED PT 016 JAN 19 1981	42
		119

MADE BY: Dr M. Hancock Jan 1, 1980 | DATA COMMUNICATION PRODUCTS BUSINESS | WAYNESBORO, VA | 44C415082 | CONT ON SHEET 3 | SH NO. 2

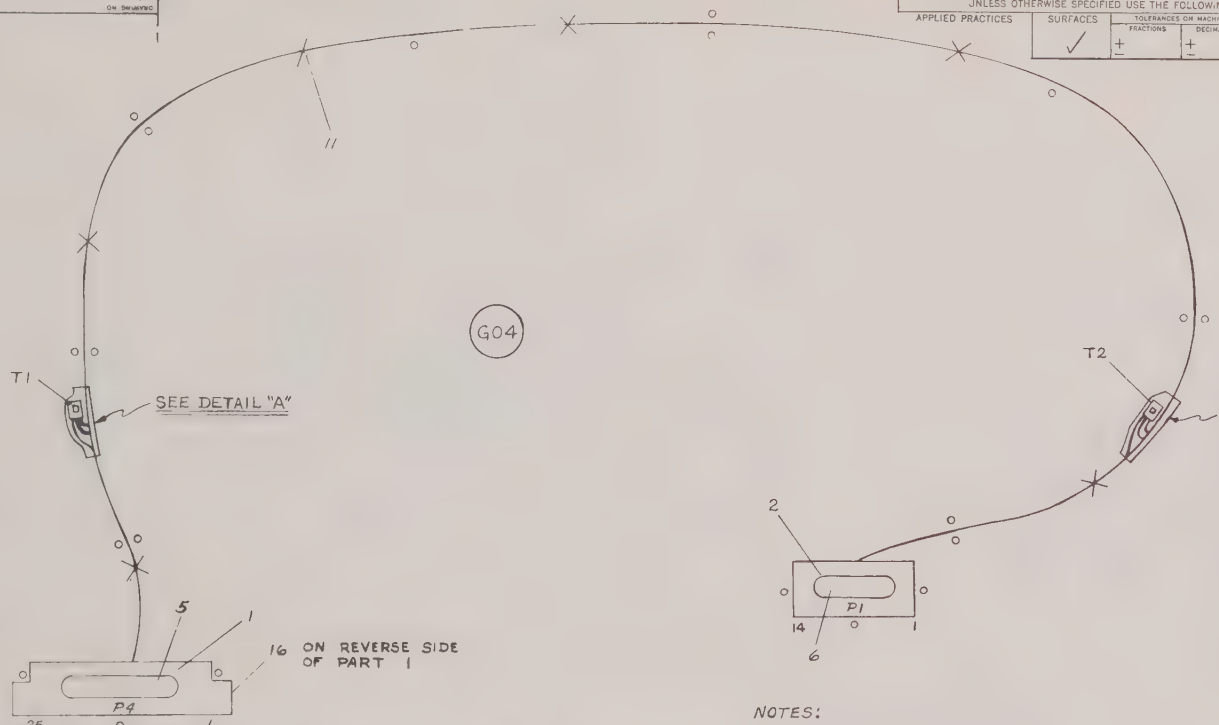
44C415082 SHEET 3 SH NO. 2 REV N/I

GENERAL ELECTRIC

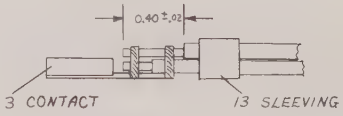
UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING:— APPLIED PRACTICES | SURFACES ✓ | TOLERANCES ON MACHINED DIMENSIONS: FRACTIONS ± | DECIMALS ± | ANGLES ±

TITLE: CABLE ASM.

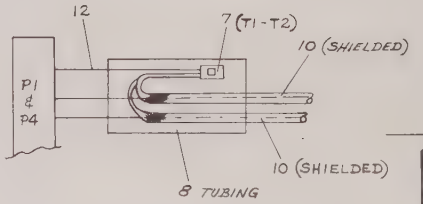
FIRST MADE FOR = BAT200



P. L. ISSUED



DETAIL "B"



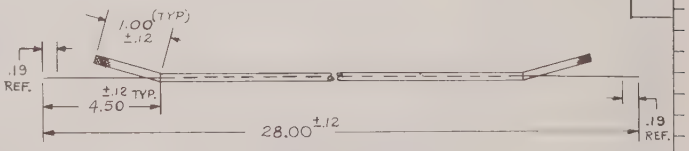
DETAIL "A"

NOTES:
1. A14 IS THE CENTER WIRE IN A31.
2. A28 IS THE CENTER WIRE IN A29.

FROM						TO			
MARKING	WIRE P.L. NO.	±12 LENGTH	±.03 STRIP	TERM. P.L. NO.	ROUTING	±.03 STRIP	TERM. P.L. NO.	ROUTING	SIGNAL
A01	9	28.00	.19	3	P1-1	.19	3	P4-19	TTB
A02	9	28.00	.19	3	P1-15	.19	3	P4-14	SYNC
A03	9	28.00	.19	3	P1-2	.19	3	P4-16	BDS
A04					P1-16			N.C.	+15V
A05	9	28.00	.19	3	P1-3	.19	3	P4-5	ARDY
A06	9	28.00	.19	3	P1-17	.19	3	P4-8	WAIT
A07	9	28.00	.19	3	P1-4	.19	3	P4-13	BRS
A08	9	28.00	.19	3	P1-18	.19	3	P4-20	LLVS
A09	9	28.00	.19	3	P1-5	.19	3	P4-7	DTBR
A10	9	28.00	.19	3	P1-19	.19	3	P4-12	TDB
A11	9	28.00	.19	3	P1-6	.19	3	P4-10	LOCAL
A12	9	28.00	.19	3	P1-20	.19	3	P4-3	FLDP
A13	9	28.00	.19	3	P1-7	.19	3	P4-6	TRSF
A14	10	28.00	.19	3	P1-21	.19	3	P4-24	PH2*
A15	9	28.00	.19	3	P1-8	.19	3	P4-25	+5V ⊕
	9	2.00				.19	3	P1-23	
A16					P1-22			N.C.	+5V BAT
A17									
A18									
A19	9	28.00	.19	3	P1-10	.19	3	P4-17	SDO
A20	9	28.00	.19	3	P1-24	.19	3	P4-4	+12V ⊕
	9	2.00				.19	3	P1-9	
A21	9	2.00	.19	3	P1-11	.19	3	P1-12	-5V
A22	9	28.00	.19	3	P1-25	.19	3	P4-11	MCI
A23									
A24									
A25	9	28.00	.19	3	P1-13	.19	3	P4-23	OV
A26				4	P1-27		4	P4-18	KEY
A27					P1-14			N.C.	-17V
A28	10	28.00	.19	3	P1-28	.19	3	P4-28	PH1 *
A29	10	28.00	ALREADY STRIPPED	7	T1	ALREADY STRIPPED	7	T2	SHIELD*
A30	12	4.75	.37		T2		3	P1-26	DRAIN *
A31	10	28.00	ALREADY STRIPPED	7	T1	ALREADY STRIPPED	7	T2	SHIELD*
A32	12	4.75	.37		T1	.19	3	P4-22	DRAIN *

* SHIELDED WIRE

⊕ SEE DETAIL "B" FOR CONNECTING 2 WIRES INTO ONE CONTACT.



44C415082-020 MAKE FROM 44A418687-001 SHIELDED WIRE (USE AT: A14, A28, A29, A31)

REVISIONS		PRINTS TO	
1	1 OCT 8, 1980 T.M. Cook 50-9392		79
2	ADDED PT. 010 J. WILSON JUN 19 1981	3	119
		114	
		135	
		104	
		134	

MADE BY: T.M. Cook 8-1-80 | SSUED: SEP 29 1980 | APPROVED: R.M.B.

DATA COMMUNICATION PRODUCTS DEPT. DIV OR DEPT. WAYNESBORO VA. LOCATION

44C415082 CONT ON SHEET — SH NO. 4

FF 808 F (1 77) PRINTED IN U.S.A.

12

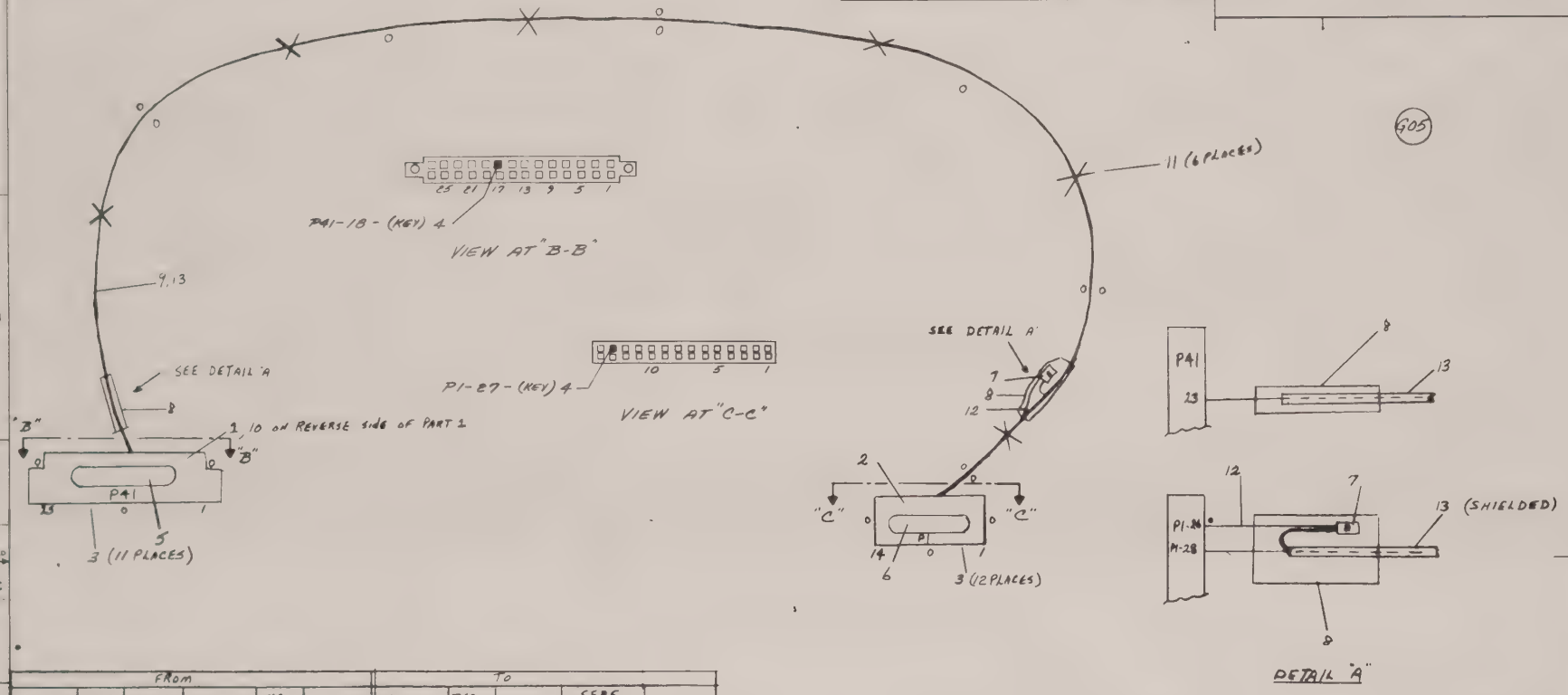
GENERAL ELECTRIC

UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING:-				
APPLIED PRACTICES	SURFACES	TOLERANCES ON MACHINED DIMENSIONS		
		FRACTIONS	DECIMALS	ANGLES
	✓	±	±	±

TITLE: CABLE Asm

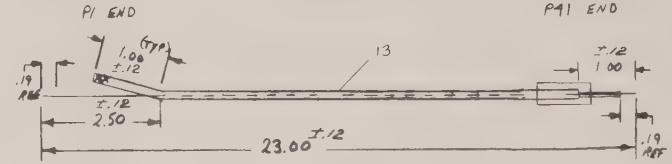
FIRST MADE FOR: T1232

44C415082 FNL SH. NO. 5



DETAIL "A"

FROM						TO				
MARKING	WIRE P.L. NO.	± .12 LENGTH INCH	± .03 STRIP	TERA P.L. NO.	ROUTING	± .03 STRIP	TERA P.L. NO.	ROUTING	SEBF SIGNAL NAME	SIGNAL NAME
A01	9	23.00	.19	3	P1-1	.19	3	P41-11	$\overline{TTB}$	TTB
Shielded CENTER	.3	23.00	.19	3	P1-28	.19	3	P41-23	$\overline{PH1}$	Ø1
A02	9	23.00	.19	3	P1-3	.19	3	P41-27	$\overline{ABDY}$	ABDY
A03	9	23.00	.19	3	P1-4	.19	3	P41-25	$\overline{BRS}$	BRS
A04	9	23.00	.19	3	P1-18	.19	3	P41-5	$\overline{ILVS}$	ILVS
A05	9	23.00	.19	3	P1-19	.19	3	P41-9	$\overline{TDB}$	TDB
A06	9	23.00	.19	3	P1-13	.19	3	P41-14	0V	-5V
A07	9	23.00	.19	3	P1-14	.19	3	P41-15	-17	-17V
Shield	3	23.00	.19	7	Pt 7	—	—	—	Shield	Shield
A08	12	3.50	.19	3	P1-26	—	—	SPLICE	—	—
	9	1.50	.4	3	P1-9	.19	3	P1-24		
	9	1.50	.19	3	P1-8	.19	3	P1-23		
	9	1.50	.19	3	P1-11	.19	3	P1-12		

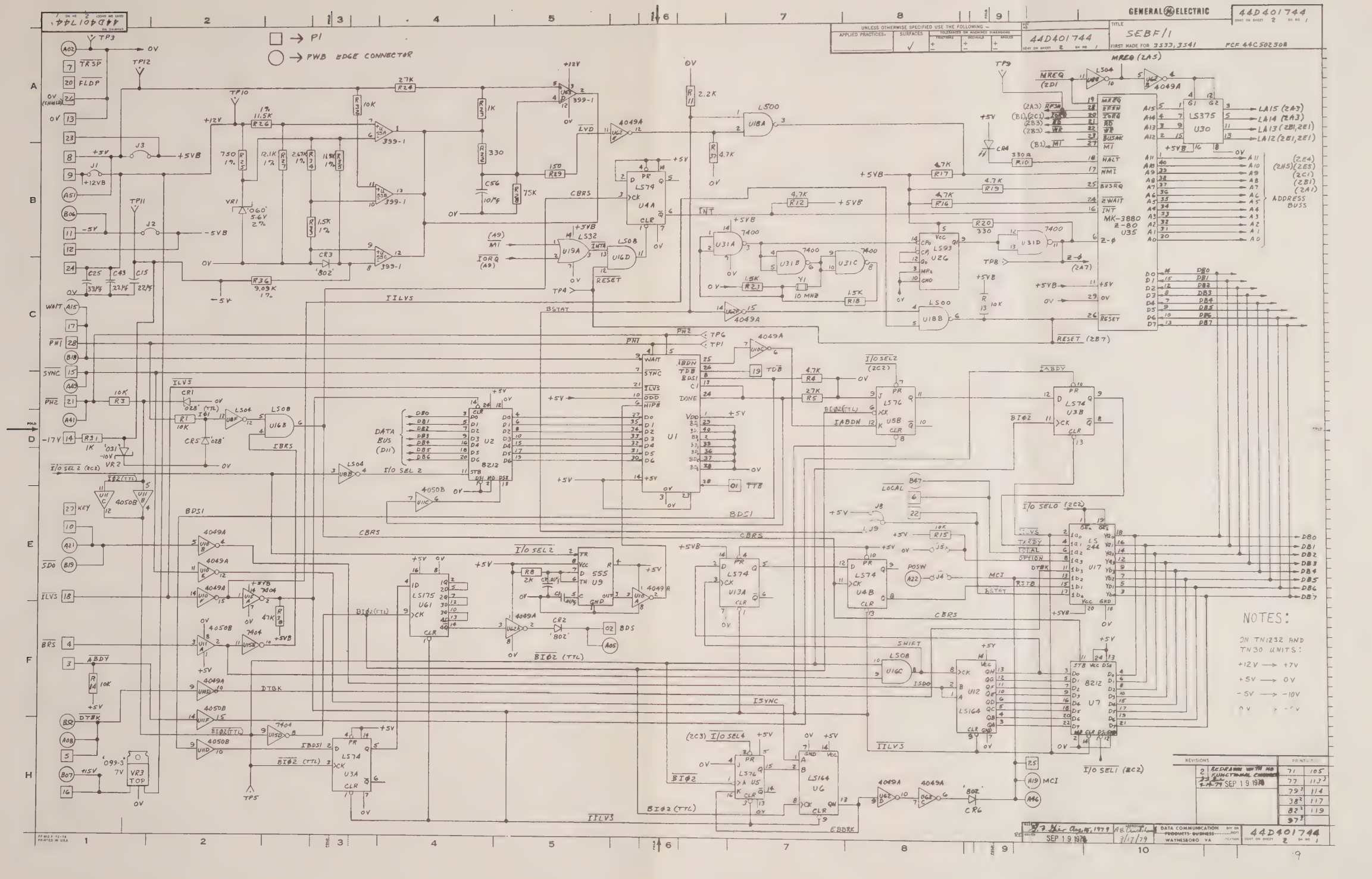


(013) MAKE FROM 44A418687-001 SHIELDED WIRE. CENTER CONDUCTOR TO P1-28 + P41-23 SHIELD TO P1-26

REVISIONS	PRINTS TO	
	135	134
	33	119
	119	
	35	
	74	
	102	

DRAFTSMAN	APPROVALS	DATA COMMUNICATION PRODUCTS BUSINESS	44C415082
DATE: AUG 24 '81	DATE: 8/31/81	LOCATION: WAYNESBORO VA	DRWG OR SHEET FNL SH. NO. 5

12


GENERAL ELECTRIC
44D401744
TITLE
SEBF/1
FIRST MADE FOR 3533, 3541
PCF 44C502308
□ → P1
○ → PWB EDGE CONNECTOR
MREQ (2A5)
IILVS
BSTAT
CBRS
BDSI
I/O SEL 2
I/O SEL 4
I/O SEL 1
I/O SEL 0
IABDV
IBRS
IBDSI
ISYNC
IILVS
EBBRK
DATA BUS (DII)
MK-3880 Z-80 U35
ADDRESS BUSS
NOTES:
ON TN1232 AND TN30 UNITS:
+12V → +7V
+5V → 0V
-5V → -10V
0V → -5V
REVISIONS
SEP 19 1979
DATA COMMUNICATION PRODUCTS-BUSINESS
WAYNESBORO VA
44D401744

TITLE: SEBF/1
FIRST MADE FOR 3533, 3541 (FCF44C562508)

44D401744 SHT F SH NO 2

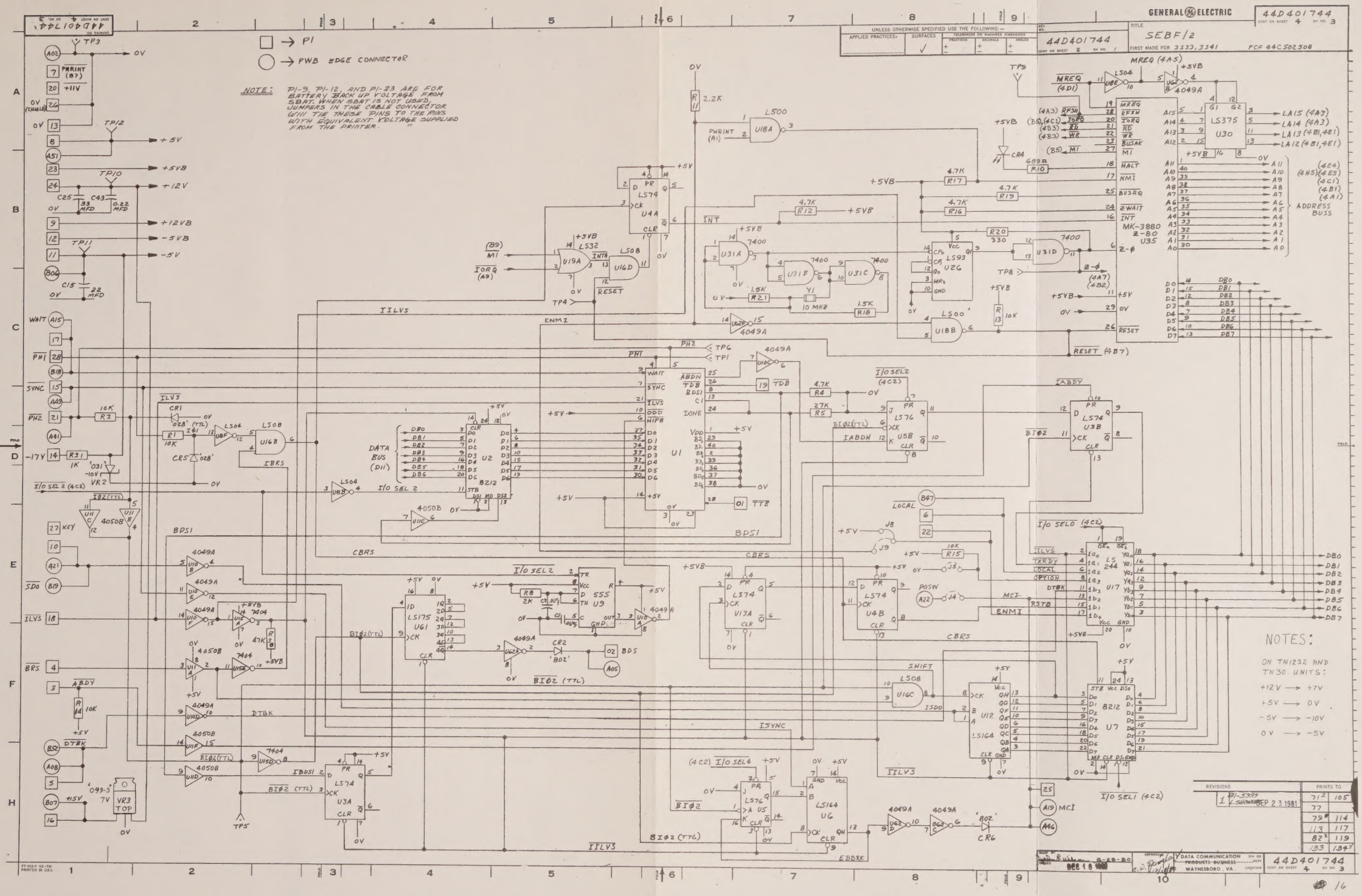
(1B11) ADDRESS BUS
SWITCH
LS157 U59
LS157 U54
LS32 U21C
LS138 U23
LS138 U24
LS32 U25
LS08 U16A
LS32 U19B
LS32 U19C
LS32 U19D
LS32 U21A
LS32 U21B
LS04 U8D
LS04 U8A
LS04 U8C
7404 U8B
LS00 U14D
LS00 U14A
LS00 U22B
LS00 U22A
LS00 U22D
LS00 U18D
LS00 U14C
LS00 U18C
LS00 U14B
LS74 U13B
7404 U15C
LS32 U22C
7404 U15A
LS244 U60
U27 U28 U29 U32 U33 U34 U36 U37 U38 U40 U41 U42 U44 U45 U46 U47 U48 U49 U51 U52 U53
RAM 4116-25 /2104-4 U56 U57 U58
PROM 2716/2516 2532/2732 U43 U39
J6 J7
TP2 TP7
RAS RESET RFSH RD WR CASEN BRD CAS0 CAS1 CAS2
ROMEN 2 ROMEN 1
ROMSEL 0 ROMSEL 1 ROMSEL 2 ROMSEL 3
MA0 MA1 MA2 MA3 MA4 MA5 MA6 CAS
DB0 DB1 DB2 DB3 DB4 DB5 DB6 DB7
+12V B
C9 C16 C46 C31 C38 C51 C47 C53 C14 C55 C49 C12 C40 C27 C35 C21 C29 C23 .22µF
C11 C24 C32 C52 C54 C48 C41 C34 C28 C22 C18 C13 0.1µF
C7 C20 C39 C17 C19 C33 C42 0.01µF
CERAMIC CAPACITORS CONNECTED AMONG RAM DEVICES
1µF C5, C6, C8, C10, C30, C50, C58 .1µF CAPS CONNECTED AS SHOWN AMONG TTL PACKS.
1µF C29, C36, C37, C44, C45, C57 .1µF CERAMIC CAPS CONNECTED AS SHOWN AMONG TTL PACKS.

NOTES:
ON TN1232 AND TN30 UNITS
+12V → +7V
+5V → 0V
−5V → −10V
0V → −5V

REV	DESCRIPTION	DATE	APPROVED
2	REDRAWN WITH NO FUNCTIONAL CHANGES	SEP 19 1979	
3		SEP 28 1979	

71	105
77	113
79	114
38	117
82	119
91	

DRAWN Aug. 14, 1979 — RELEASED SEP 19 1979 — 11/7/79
DATA COMMUNICATION PRODUCTS BUSINESS — WAYNESBORO, VA.
44D401744 SHT F SH NO 2


GENERAL ELECTRIC
44D401744
SEBF/2
FIRST MADE FOR 3533, 3541
FCF 44C502308
□ → PI
○ → PWB EDGE CONNECTOR
NOTE: PI-9, PI-12, AND PI-23 ARE FOR BATTERY BACK UP VOLTAGE FROM SBAT. WHEN SBAT IS NOT USED, JUMPERS IN THE CABLE CONNECTOR WIH THE THESE PINS TO THE PINS WITH EQUIVALENT VOLTAGE SUPPLIED FROM THE PRINTER.
NOTES:
ON TN1232 AND TN30 UNITS:
+12V → +7V
+5V → 0V
-5V → -10V
0V → -5V
REVISIONS
PRINTS TO
DATA COMMUNICATION PRODUCTS-BUSINESS
WAYNESBORO, VA.

GENERAL ELECTRIC

44D401744 CONT ON SHEET F SH NO 4

UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING: — APPLIED PRACTICES — SURFACES √ — TOLERANCES ON MACHINED DIMENSIONS: FRACTIONS ± DECIMALS ± ANGLES ±

44D401744 CONT ON SHEET F SH NO 2

TITLE SEBF/2

FIRST MADE FOR 3533, 3541 (FCF44C502508)

(3B11) ADDRESS BUS

SWITCH

LS157 U59 — LS157 U54 — LS32 U21C — LS138 U23 — LS138 U24 — LS138 U25

LS32 U21D — LS04 U8D — LS00 U14D — LS00 U14A — LS74 U13B — 7404 U15C

LS04 U8A — LS00 U22B — LS00 U22A — LS00 U22D — LS00 U18D — LS00 U14C — LS00 U18C — LS00 U14B — 7404 U15B

LS08 U16A — LS32 U19B — LS32 U19C — LS32 U19D — LS32 U21A — LS32 U21B

LS244 U60 — LS00 U22C — 7404 U15F

U27 U28 U29 U32 U33 U34 U36 U37 U38 U40 U41 U42 U44 U45 U46 U47 U48 U49 U51 U52 U53

RAM 4116-25 U56 /2104-4 — RAM 4116-25 U57 /2104-4 — RAM 4116-25 U58 /2104-4

PROM 2716/2516 2532/2132 U43 — PROM 2716/2516 2532/2732 U39

DB0 DB1 DB2 DB3 DB4 DB5 DB6 DB7

TP2 TP7

RAS CASEN BRD CASO CASI CASZ RD WR RFSH RESET IORQ MREQ

RAMDEC ROMSEL 0 ROMSEL 1 ROMSEL 2 ROMSEL 3 MA∅ NOT USED

ROMEN 2 ROMEN 1

I/O SEL 0 (3E9) I/O SEL 1 (3H10) I/O SEL 2 (3D1)(3D11) I/O SEL 3 NOT USED I/O SEL 4 (3H7) I/O SEL 5 I/O SEL 6 I/O SEL 7 NOT USED

MIG1 MIG2 MIG3 J6 J7

+12VB

C9 C16 C46 C31 C38 C51 C47 C53 C14 C55 C49 C12 C40 C27 C35 C21 C29 C23 .22µF

C11 C26 C32 C52 C54 C48 C41 C34 C28 C22 C18 C13 .1µF

C7 C20 C39 C17 C19 C33 C42 22µF .01µF

CERAMIC CAPACITORS CONNECTED AMONG RAM DEVICES

.1µF

C5, C6, C8, C10, C30, C50, C58 .1µF CAPS CONNECTED AS SHOWN AMONG TTL PACKS.

C24, C36, C37, C44, C45, C57 .1µF CERAMIC CAPS CONNECTED AS SHOWN AMONG TTL PACKS.

NOTES:

ON TN1232 AND TN30 UNITS

+12V ⟶ +7V
+5V ⟶ 0V
−5V ⟶ −10V
0V ⟶ −5V

SPARES: U55B

REVISIONS

1 B. Morris FEB 27 1981

PRINTS TO

71²	105
77²	
79	114
119	117
82²	119
133	134²

DEC 19 1980

DATA COMMUNICATION PRODUCTS BUSINESS DEPT — WAYNESBORO, VA LOCATION

44D401744 CONT ON SHEET F SH NO 4

FT-812-F 02-78 PRINTED IN U.S.A.

Data Communication Products Business Department • General Electric Company
Waynesboro, Virginia 22980, USA

GENERAL ELECTRIC

MP MASTER
MA32666